AMERICAN

DYESTUFF REPORTER

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AMERICAN
DYESTUFF REPORTER

VOLUME 41 JULY 21, 1952 NUMBER 15

CONTINUOUS DYEING METHOD IN VAT COLOR PRINTING

FRED F JACOBS
Ciba Company, Inc

THE importance of continuous vat dyeing operations is evident in the millions of yards that have been successfully processed by the pad steam and Williams Unit methods.

The pad steam method of dyeing vat colors consists of padding the cloth with vat color pigment dispersions, drying the material, treating with caustic and hydro, steaming a few seconds, and finally passing it through the usual oxidizing, rinsing, and soaping operation. By substituting the pigment padding operation with a pigment printing operation, a continuous method of developing the printed vat colors can be devised to produce results with yield, shade, and fastness propetries surpassing those of the conventional printing and developing procedure.

The development of vat color pigment prints according to a continuous method is identified as the "flash aging" procedure. When this procedure was first introduced by the author about six years ago, it aroused great interest. However, many difficulties of both a chemical and mechanical nature had to be overcome. The method, developed in response to urgent requirements of the screen printing industry, was designed to enable it to compete with the styling and fastness properties of the machine printers. The use of vat colors in a conventional manner, calling for additions of printing hydro, potash, and glycerine, was not suitable for the screen printer for obvious reasons. The drying of the printed cloth was uneven and rather prolonged, and, during this prolonged drying, a certain decomposition of the chemicals took place. The drying difficulties generally possessed by the screen printer are accelerated with vat color print pastes because all the necessary chemicals are highly hygroscopic.

The development of vat colors printed as pigments called for a treatment in a chemical bath containing hydrosulfite and caustic soda. To prevent the bleeding of the prints during such treatment, the thickening used for printing the pigments had to have film-forming properties to hold and bind pigments during the padding operation. The original recommendation, along with all preliminary tests of this method, was based on the use of methyl cellulose as a carrier in conjunction with some starch or other suitable admixture. Methyl cellulose had the property of forming an insoluble film in the presence of alkali.

F F Jacobs

Although the results which had been obtained from the original tests with methyl cellulose showed a good color yield, it was discovered that the methyl cellulose had to be completely removed from the fiber to prevent an excessive crocking of the prints. This complete removal, however, presented difficulties, as even traces of alkali insolubilized the thickening. The problem was further complicated by the fact that methyl cellulose is also insoluble at elevated temperatures. The removal called for a very prolonged cold water rinse, and a possible further expense in the form of additions of acetic acid to neutralize the alkali. Therefore, the methyl cellulose was replaced by Locust Bean Gum, which is also a film-forming thickening in presence of alkali. Combinations of Locust Bean Gum with starches or alginates are still being used today. Resins or resin carrying starches have also been tried, as logically such thickenings when dry should sufficiently bind the vat color pigment for further chemical treatment. It has been found, however, that with the presence of resins, the final prints do not show a perfect fastness to crocking.

The fixation of the vat color is obtained by passing the printed cloth through a developing bath containing caustic and hydro and immediately passing the padded material into a steam chamber for about 20 seconds, after which the material is rinsed, reoxidized, and soaped.

With the chemical padding operation, the chemical cost varied considerably, as it depended largely on the weight of the cloth which was passed through the developing bath. A light weight cloth, naturally, absorbed less liquor than heavier drapery material. In order to control the chemical cost, tests were conducted to apply the developing liquor as a coating in a thickened form on the surface of the printed material. However, coating equipment is not standard equipment in textile plants and therefore was not readily available. For this reason, the coating idea was changed to a blotch printing procedure.

Printing the necessary chemicals over the material as an over-all blotch eliminates, at the same time, the necessity of using film-forming thickenings in the printing of vat color pigments; since during the chemical blotch printing operation, no bleeding or blurring of the prints takes plcae.

The proper selection of thickenings for printing the vat color pigment makes it possible to obtain prints with any desired properties: for example, starches will produce better surface prints, algi-

nates will produce smoother blotches, or a starch-ether, as well as a modified amioca thickening will facilitate a rapid removal from the fiber during the soaping operation. In addition, dextrine may be added to protect vat color types sensitive to high temperature. Similarly, thickenings may be selected for the blotch application of the chemicals. These thickenings again may be selected for their ease of removal and best color yield. Following these recommendations, it is possible to control the cost of the chemical padding operation.

The "flash aging" method consists of printing a vat color pigment with the best suitable thickenings, blotching the printed cloth with the necessary chemicals, also under the best possible conditions, and passing the blotched cloth from 10-20 seconds through steam. The steaming is accomplished by a length-wise passage of the cloth over supporting rolls. A short pre-heating arrangement at the entrance of the steam unit produces a more efficient utilization of the steam passage.

Tests under the above conditions indicate a considerable additional color value of vat types over that obtained by the conventional method of printing. Therefore, this process offers a considerable attraction to all print works. The "flash aging" method has been used in many screen printing plants for over three years and has proven very successful. Wtih some adjustments, the machine printer can also realize the benefits of this method.

When evaluating the conventional method of printing vat colors against the "flash aging" procedure, it is important to know that the vat color dyeing types are equally as suitable by "flash aging" as the normal vat color printing standards. This greatly increases the range of suitable vat types with a more desirable selection of these colors for both shade and fastness properties. Furthermore, the processing of the printed material can be done at any time, as there is nothing in the print which may decompose or deteriorate. The conventional aging of 5-10 minutes with the possibility of subsequent mark-offs is completely eliminated. The fastness to crocking of the prints is excellent. One should also not overlook the fact that print pastes in the color shop can be re-used at any time, as they are not subject to decomposition.

The introduction of this method to textile printing plants requires careful supervision in order to make the process workable and practical.

Available patterns printed in the conventional manner should first be matched for strength and shade by the "flash aging" method. For these tests a laboratory flash ager has to be available. After the tests are complete and the best thickening agents and developing conditions have been determined, the tests should be transferred to the print shop for a short practical run on a large machine. In order to eventually adapt this method for a full scale run, a patch ager should also be made available for the printer to process these patches and gain experience in handling them. Only after all these necessary preliminary tests have been completed, should a large scale trial be made. The results obtained in the patch ager can be carefully correlated with the results on the larger unit run in conjunction with continuous soaping.

The introduction of continuous dyeing methods represented a challenge to plants which had been accustomed to using jigs, dye becks, or other dyeing apparatus. Similarly, the printing industry is now faced with the challenge of modernizing an age-old procedure of handling vat colors.

• PATENT DIGEST •

PAUL WENGRAF

DYEING———Development Through Liquid Metal Alloys C, 1

Brit P 665,454
(Standfast Dyers & Printers—Jan 23, 1952)

This patent belongs to the series of inventions covering the "Standfast Molten-Metal Process" (cf French Pat 900,758); *Am Dyestuff Reptr 40*, 338 (1951) and Brit Patents 620,584 and 663,066, *Am Dyestuff Reptr 41*, 306 (1952).

It has been observed that, by prolonged heating, decomposition products of hydrosulfite form in the vat that floats above the molten metal. These substances attack the molten metal and separate as a sludge, thereby affecting the dyeing results. The present invention is concerned with the problem of avoiding these decomposition products by maintaining the dye vat at a minimum volume. Thus the vat is exposed

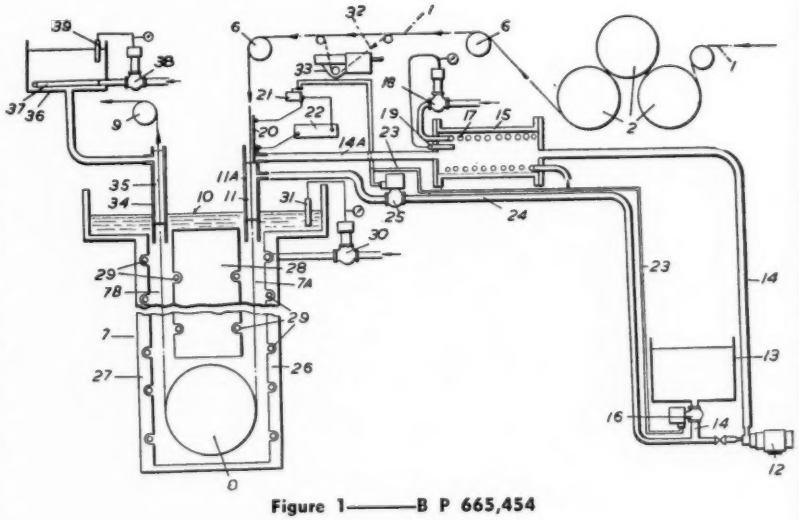

Figure 1———B P 665,454

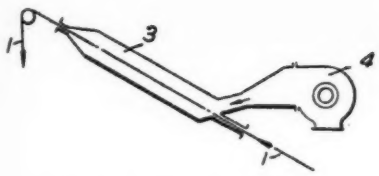

Figure 2———B P 665,454

for a comparatively short time to heat; the goods constantly absorb the dye liquid, which is continuously replenished by a device constructed for this purpose.

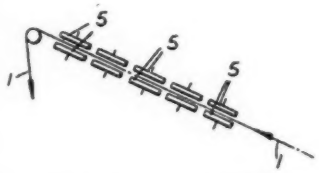

Figure 3———B P 665,454

According to Fig 1, fabric (1) is first led over drums (2) to heat the material at a temperature above 70° C. Drums (2) can be replaced as shown in Figures 2 and 3 by a hot-air-heated casing or by electrical radiant units. Preheating of the cloth is essential because of the small volume of the dyebath, which might be unduly chilled and decomposed in contact with a relatively large volume of cold fabrics. Fabric (1) is further conveyed over rolls (6) to the dye liquor contained in a small metal dye box (11A), extending into the molten metal bath (10) and from here (as shown in the drawing) over roll (8) through a similar box (34) to the withdrawing roll (9) after passing the liquid metal.

The heat of the molten-metal bath must not be above 90-100° C, otherwise the wet material develops steam bubbles that interfere with uniform dyeing results. The molten metal, flowing down by gravity from tank (36), is maintained at the necessary temperature by a thermostat (39), which controls the flow of steam that heats the alloy through the pipe (38).

The dye liquid, kept at 25-30° C in tank (13), is pumped through pipe (14) to a heating tank (15), which is kept thermostatically at a temperature of about 80° C. A feed valve (16) controls by electrical means the flow of the dyeing liquid to the dye box (11A) to prevent the streaming of excess liquid to tank (15). When the liquid level (11) rises, it contacts a metal rod (20) closing the feed valve (16) until enough dye liquid is absorbed to again lower the level of the dye vat.

DYEING WITH AZODYES, Obtained by Internal Coupling Reaction C, 4, 03

Brit P 666,462
(F G Anderson—Feb 13, 1952)

The dyeing method protected by the present patent is based on an intramolecular reaction that occurs within the fiber, forming a dyestuff by subsequent diazotizing development with nitrous acid.

The compounds to be used in this process are described as substances of two aromatic nuclei, one of them bearing a diazotable amino group, and the other a hydroxy group capable of coupling. The amino group can also be formed by reduction of a nitro group attached to the nucleus. These compounds can be applied by themselves or in combination with sulfur or vat colors from an alkaline bath. A further treatment with sodium nitrite and acetic acid has the effect of intramolecular diazotization, forming a dyestuff which can be used particularly to produce a deeper or altered shade compared with that of the original color of the vat- or sulfur dye applied in the same dyebath.

Example: rayon, cotton or linen are treated with m-nitranilide of β-oxynaphthoic acid dissolved in alkali or sodium sulfide for half an hour at a temperature near the boiling point, after which the goods are run into a solution of 1% sodium nitrite and 5% acetic acid, whereby a red shade is developed. A brown sulfur dye can be combined with this solution to give a much redder shade than the original sulfur dye.

This process can also be applied in printing textiles. A dischargeable dye ground, e g, Direct Fast Yellow 4 GL or Chloramine Fast Yellow 4 GL (C I 346), is printed with the above-mentioned compound plus Rongalite. After aging, Rongalite has destroyed the yellow ground while the metanitranilide of β-oxynaphthoic acid is not attacked. Upon subsequent diazotization the discharged area appears in the red shade of the diazotized dyestuff.

Reference is made to Tursky's Brit P 347,609 (1931), which describes self-coupling dyes formed from aromatic compounds bearing free amino- and hydroxy groups that undergo an intramolecular diazotizing and coupling reaction by a nitrous acid aftertreatment. One of the examples given in the Tursky patent refers to the padding of rayon in metaaminoanilide of β-OH-naphthoic acid dissolved in dilute NaOH, acidifying and aftertreating with nitrite plus acid. Other examples mention analogous processes using sodium sulfide instead of NaOH. Brit P 387,360 (Ciba/1933) refers to a similar process wherein nitrite is added to the alkaline solution; a development in acid follows. These references, however, do not suggest that these solutions be blended with vat- or sulfur dyes nor do they propose application of the products for printing discharges.

DYEING WOOL WITH CHROMATABLE ACID DYES———Nonionic Compounds plus Magnesium Salts Used C, 4, 06

Brit P 668,598
(Farbenfabriken Bayer—March 19, 1952)

The standard metachrome process is characterized by the dyeing of chromatable acid dyes in the presence of alkali mono- or dichromates and ammonium sulfate. These ingredients are added at the start of the dyeing process in contrast to the afterchroming procedure. It has been experienced that only a limited number of dyes applied by this process give satisfactory results, while many other dyes generally used in the afterchroming process show insufficient affinity and give unsatisfactory shades.

It has been observed that the affinity of most of the chromatable dyes can be improved in dyeing according to the metachrome method by adding nonionic surface-active-agents and magnesium salts to the dye bath. Alkaline earth salts may be substituted for the magnesium salts, provided they do not form precipitates in the dyebath.

The nonionic agents applied in this case belong to the polyethylene glycol ether type, comprising aliphatic higher alcohols or alkylphenols with an alkyl chain from 4-20 C and a polyglycolether chain from 6-30 mols glycol. Examples include condensates of alkylxylenol, oleic acid amide or oleylalcohol with ethylene oxide, etc (thus, assistants of the Igepal- or Peregal type).

Example: wool is dyed at 40-50° C in a dyebath containing the azodye prepared from 1-amino-2-hydroxy naphthalene-4-sulfonic acid and 2-hydroxynaphthalene (corresponding to Chrome Fast Cyanine C I 201), sodium sulfate, magnesium sulfate and potassium monochromate. The temperature is raised within one-half hour to the boil, which is continued for one to 1½ hours. A full blue shade is obtained while only a dull useless color results when the standard metachrome procedure is applied.

Reference is made to some patents of I G Farbenindustrie-Rittinghausen-Hayn (U S Pat 2,040,796, Ger Pat 607,750), which describe dyeing methods for chrome complex dyes in the presence of nonionic assistants (e g, dodecanol reacted with ethylene oxide) to reduce the acid content of the dyebath. The present patent

differs in that the dyestuff is not a chrome-complex but a chromatable azodye applied in the usual metachrome process.

DYEING WOOL WITH SULFUR DYES———Ethanolamines Reacted with Dihydrogensulfide C, 4, 03

Brit P 669,002
(Vereinigte Farbereien Akt Ges—Zukriegel—March 26, 1952)

The problem of dyeing wool or other animal fibers with sulfur dyes (Immedial, Katigen, Thional, Eclipse, etc) has not yet been solved, although application of this dyestuff group on woolen goods might be very interesting because of its good light- and washfastness and particularly because of low price.

Many suggestions have been offered in the past to overcome the damaging effect of caustic alkalies or concentrated sodium sulfide solutions on the animal fibers. The preamble of this patent mentions, for instance, the use of protective colloids, such as glue, protein degradation products, or sulfite waste liquor; replacing alkaline liquors by organic amines; and the use of pyridine combined with hydrosulfite. These methods are described as unsuccessful.

According to the present invention the sulfur dyes are dissolved or reduced before dyeing or printing of animal fibers with hydrosulfided ethanolamines, preferably triethanolamine. This term is used for products obtained by passing H_2S gas through one of these bases. Although no claim is made for a definite chemical compound, the inventor assumes that hydrosulfides of the bases result. The goods are optionally bleached, wetted and immersed in a dyebath in which the sulfur dyes are dissolved by means of the hydrosulfided amines. Suitable dyes include among others, Pyrogen Green B and Pyrogen Indigo, Immedial Brown BR, Indocarbon CL and several Eclipse dyestuff brands. Dyeing is carried out within about one hour at 56-80° C and a pH of 7-9. The shades are reported to be uniform, bright and deep. Glauber's salt, which is usually added in dyeing, might be partly or entirely replaced by sulfates of ethanolamines.

Accordingly, printing pastes might be prepared by dissolving sulfur dyes as mentioned above in hydrosulfided ethanolamines, adding glucose or another reducing agent and incorporating this mixture into a thickener. The printed goods are steamed, as usual, at about 100° C, then acidified and washed.

No exact chemical formula for reaction products of H_2S and ethanolamines could be found in organic chemistry textbooks, but it is known that ethanolamines absorb strongly H_2S as well as CO_2. This reaction has been used, for example, for purifying coal gas by passing the gas through triethanolamine to remove H_2S (cf French P 761,060, I G Farbendind/1934). It is very interesting to note that these apparently salt-like compounds can be used in coloring animal fibers with sulfur dyes.

DYEING FLUORESCENT ARTIFICIAL FILAMENTS ———Inorganic Pigments Incorporated C, 4, 07

Brit P 669,028
(Brit Celanese Ltd—March 26, 1952)

Artificial filaments, especially cellulose ester filaments, are dyed in shades fluorescing in ultraviolet light in a color substantially the same as in white light. This property is said to be retained even after prolonged exposure to ordinary or ultraviolet light.

The present invention quite generally consists of incorporating fluorescent pigments in the spinning dope, preferably immediately before extrusion. The pigments distributed throughout the material should be in a finely-comminuted form of a diameter not exceeding 5 microns, and even less than 0.1 micron. Under these conditions physical properties, i e, tenacity and elongation characteristics, are not substantially altered. The pigmented yarns are then dyed with a suitable nonfluorescent dyestuff provided the latter is resistant to ultraviolet light.

It is necessary to select the inorganic pigments according to the shade which they must subsequently be dyed. Examples of appropriate fluorescent inorganic substances include: for yellow yarns——zinc sulfide, cadmium sulfide or cadmium tungstate; for red colors——mercuric oxide, rhodium thiocyanate, etc. Zinc sulfide may be prepared in a suitable way (not discussed in this specification) to give red, blue or green fluorescent effects.

The nonfluorescent dyes used for after-dyeing these pigmented yarns may belong to the dispersed acetate dyestuff class, or they may be acid dyes applied in a known way. When regenerated cellulose yarns or saponified acetate yarns have to be dyed in this process, direct dyes such as Cotton Sky Blue FF or Chlorantine Yellow may be employed.

Example: a pigmented cellulose acetate filament is produced by adding one part of finely-divided zinc sulfide, prepared to fluoresce in red color, to 400 parts of a 25% solution of cellulose acetate in acetone. The spinning mass is extruded through a spinning jet into warm air. This yarn is dyed with a red acetate dye of the azo group, dispersed in sulfonated ricinoleic acid at 180° F. A bright red yarn results, that is fluorescent in ultraviolet light in a brilliant red shade. Alternately, the pigmented yarn may be dyed from a dilute alcohol solution of Fast Red (CI 176), an acid dye, and some sodium thiocyanate added as a swelling agent.

Reference is made to the Switzer Patent (Brit P 644,201 (1950), cf *Am Dyestuff Reptr 40,* 106 (1951)). While similar fluorescent effects may be obtained according to both methods, the essential difference is that the present invention recommends the use of inorganic pigments to bring about fluorescence, while a large variety of nonfluorescent dyes can be employed to obtain the shades desired.

THE ANNUAL INDEX TO THE PATENT DIGEST

FROM JULY, 1951 THROUGH JUNE, 1952

Will Appear in the August 4 Issue

Proceedings of the

American Association of Textile Chemists and Colorists

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Editor of Proceedings: Carl Z Draves, 30 Lahey St, New Hyde Park, N Y

July 21, 1952

CALENDAR

COUNCIL
September 12 (Philadelphia); November 6 (Boston)

GENERAL RESEARCH COMMITTEE
(See Council dates)

NATIONAL CONVENTIONS
November 6-8, 1952 (Hotel Statler, Boston); September 17-19, 1953 (Hotel Conrad Hilton, Chicago); 1954 (Atlanta, Ga).

MID-WEST SECTION
October 4 (Hotel Bismarck, Chicago).

NEW YORK SECTION
September 26, October 24, November 21 (Kohler's Swiss Chalet, Rochelle Park, N J); January 30, February 27 (Hotel Statler, New York, N Y); April 17, May 22 (Swiss Chalet)

NORTHERN NEW ENGLAND SECTION
December 6 (Annual Meeting, Lowell Textile Institute).

PHILADELPHIA SECTION
Sept 12, Oct 24 (Penn Sheraton Hotel); Dec 5, Jan 16 (Kugler's Restaurant).

PIEDMONT SECTION
Sept 13 (Hotel Charlotte, Charlotte, N C).

RHODE ISLAND SECTION
Oct 24 (Providence Engineering Society); December 5 (Annual Meeting, Sheraton-Biltmore, Providence, R I).

SOUTH CENTRAL SECTION
Aug 22-23 (Outing, Chattanooga Golf & Country Club); December 6 (Patten Hotel).

SOUTHEASTERN SECTION
Sept 13 (Biltmore Hotel, Atlanta).

WESTERN NEW ENGLAND SECTION
Oct 3, Nov 14 and Dec 12 (Rapp's Restaurant, Shelton, Conn).

Philadelphia Section Meeting Dates

THOMAS J SCANLON, Secretary of the Philadelphia Section, announces the following meeting dates:

September 12, 1952 (Penn Sheraton Hotel).

October 24, 1952 (Penn Sheraton Hotel).

December 5, 1952 (Kugler's Restaurant).

January 16, 1953 (Kugler's Restaurant).

OTHER EVENTS

AMERICAN CHEMICAL SOCIETY

7th National Chemical Exposition, Sept 9-13, Chicago Coliseum, Chicago, Ill. This will include the 2nd International Art Exhibit.

AMERICAN SOCIETY FOR TESTING MATERIALS

1953 Annual Meeting, June 29-July 3, Chalfonte-Haddon Hall, Atlantic City, N J.

AMERICAN STANDARDS ASSOCIATION

3rd National Standardization Conference, Sept 8-10, Museum of Science and Industry, Chicago, Ill.

34th Annual Meeting, November 19, Waldorf-Astoria, New York, N Y.

AMERICAN TEXTILE MACHINERY ASSOCIATION

Exhibit of American Textile Machinery, April 26-May 1, 1954, Atlantic City Exhibition Hall, Atlantic City, N J.

CANADIAN TEXTILE SEMINAR

September 11-13, Queen's University, Kingston, Ont.

FIBER SOCIETY

Sept 10-11 (Princeton, N J).

INTERNATIONAL COTTON AND RAYON EXHIBITION

Sept 27-Oct 12, Busto Arsizio, Italy.

LEIPZIG FAIR

September 7-17, Leipzig, Germany.

NATIONAL ASSOCIATION OF HOSIERY MANUFACTURERS

41st Knitting Arts Exhibition, April 27-May 1, 1953, Atlantic City Auditorium, Atlantic City, N J.

NEW YORK BOARD OF TRADE (DCAT)

26th Annual Meeting: September 25-28, Pocono Manor Inn, Pocono Manor, Pa.

27th Annual Drug, Chemical and Allied Trades Dinner, March 5 (1953), Waldorf-Astoria, New York, N Y.

TEXTILE RESEARCH INSTITUTE

23rd Annual Meeting, Nov. 17-18, Hotel Commodore, New York, N. Y.

EMPLOYMENT REGISTER

This column is open for two insertions per year, per member, without charge. Blanks can be obtained from, and filed with, the Secretary of the Association, Lowell Textile Institute, Lowell, Mass. It is understood that these will be open to inspection by prospective employers who can obtain further information from the Secretary.

52-16

Education: B S, Bradford Durfee Tech Inst, Chemistry & Dyeing; now graduate student, Polytechnic Institute of Brooklyn.

Experience: not technical, references.

Age: 27; single; work as textile chemist in vicinity of Brooklyn desired.

C C Cayce

Mr Cayce is the author of the paper, "New Dyeing Methods", which appeared on page P426 of the July 7th issue.

172ND GENERAL RESEARCH COMMITTEE MEETING

THE 172nd meeting of the General Research Committee was held at the Hotel Statler, New York City, Friday, June 13, 1952.

The meeting was called to order by the Chairman, Leonard S Little, at 1:45 pm. A motion picture "Quality Control in Modern Merchandising" was shown. This was a preview of an educational picture prepared by the J C Penney organization, the showing of which was sponsored by Charles W Dorn. Much emphasis in this picture was placed on the part played by testing laboratories in establishing specifications and laboratory control as important factors in stimulating improved merchandise in the textile field. The response was favorable and there is a possibility that the picture will be shown at the Convention in November. Mr Little then made a number of announcements. The Council that morning had approved a budget for the General Research Committee. ECR is looking for an assistant for Dr Stiegler. The next meeting of the General Research Committee will be held September 12, at Philadelphia. ISO meetings were going on in New York and a number of sessions had already been held. The following Monday shrinkage and laundering were on the agenda and it was expected to be an all-day session. Attendance at the sessions had been good and the American Standards Association had done a fine job organizing the meetings and some accompanying entertainment for the foreign visitors. Mr Little then announced that a folder had been sent to Corporate members with a Flammability Report and that the next folder should come out during the summer containing the new simplified control tests which have just been accepted by the Committee as tentative tests. He then turned the meeting over to Dr Stiegler who reviewed progress at Lowell.

Dr Stiegler referred to a new instrument shop which has been set up in cooperation with the Lowell Textile Institute Research Foundation, with a good selection of tools and equipment. He also referred to the recent AATCC exhibit at the Canadian Convention and stated that there was much interest in our test methods, especially those covering light, washing and perspiration. There was to be an AATCC exhibit booth on June 23 at the annual meeting in Atlantic City of the American Home Economics Association. He introduced Dr Julia Kiene of Westinghouse who was a guest at our meeting. Dr Stiegler then said that mechanically the Accelerotor may be considered complete. Considerable testing must still be done in order to evaluate this instrument which will be done under the auspices of the Washfastness Committee. He stated that the Dynamic Dimensional Change Meter had been made available to Mr Von Bergen who found it of interest. It is now ready to be delivered to the Celanese Corporation who will run tests on it. He referred to the work being done at Lowell for the Dry Cleaning Committee and stated that particular emphasis there was being placed on abrasion in dry cleaning, a factor which is becoming increasingly recognized. He also pointed out that AATCC personnel at Lowell have been the beneficiary of much material resulting from activities of the Lowell Textile Institute Research Foundation. Our AATCC group is making tests of these surplus materials.

ANTISTATIC FINISHES——Kenneth H Barnard, Chairman, reported that his committee had a meeting the day before attended by some 15 to 20 people, indicating considerable interest in the program which is now well under way. Additional members are volunteering. The different instruments that have been developed for measuring static were discussed. Results of work which has been done on two cloths were considered. Mr Barnard described the methods used in this evaluation and referred to the fact that the committee will make more tests on a greater variety of fabrics. Help has been offered from the Philadelphia Quartermaster Depot and other sources. Interlaboratory tests have been and will be made.

DURABLE FINISHES —— Alden D Nute, Chairman, stated that his committee had held a meeting the previous day. The crease resistance of five different fabrics has been studied on two different instruments and only slight variations among the different laboratories have been found. The effect of humidity is now of major interest. His committee is considering 90% relative humidity and 70° F temperature for a 24-hour conditioning period in what is considered the final phase of their work. Should results confirm present indications a tentative standard may be ready in September. Following Mr Nute's report there was considerable discussion with particular reference to the definition of terms.

SUBCOMMITTEE ON STREAM POLLUTION——E A Leonard, Temporary Chairman, reported that the committee in its present form had held its initial meeting the preceding day and had outlined its aims, objectives and policies. Our committee will cooperate with the National Technical Task Committee on Industrial Waste, to further the aims and objectives of that body within the textile wet processing industry. The committee will gather considerable information pertaining to this subject in its subsequent activity. It is considered advisable that each Section of the AATCC have its own stream pollution committee and that each Section furnish one member to the National committee. Organization of this committee will follow as soon as these appointments can be made.

EVALUATION OF FIRE-RESISTANT TEXTILES —— In the absence of the Chairman, Lawrence L Heffner, Dr Stiegler read the report. Test cabinets are now ready for distribution to cooperating laboratories. Sample holders are now being prepared. As soon as satisfactory calibration of the equipment is obtained interlaboratory tests will start. Interesting results are expected at the next meeting of the General Research Committee.

COLORFASTNESS TO LIGHT—— M J Babey, Chairman, reported that the exposed synthetic fibers dyeings have been examined. A number of anomalies have been found. A new research model Fade-Ometer has been turned over to Mr Seibert by Atlas Electric Devices and will be ready for use shortly. It is hoped that with the use of this instrument and a number of exposures, which will be made around the country, a better understanding can be arrived at relating Fade-Ometer results with sunlight exposures, particularly on synthetic fibers. The committee is introducing the blue standards into the comparative exposures. Mr Babey also reported that the Atlas Company is starting an experimental program checking the behavior of various types of carbons. Discussion followed.

COLORFASTNESS TO WASHING ——Charles Sylvester, Chairman, referred to a letter recently received from the American Institute of Laundering objecting to the use of our III-A test in evalu-

(Concluded on Page P456)

Rhode Island Section——

FIBERS, FABRICS, AND FINISHES OF THE FUTURE

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Fiber consumption in the years ahead can be estimated by projecting past data and making certain assumptions regarding population growth, living standards, research developments, and military requirements. This technique cannot be used for the newer synthetic fibers, which have not established growth patterns.

The prediction is made that consumption of cotton and wool will increase through 1960 but decline on a percentage basis. Viscose and acetate rayon should reach a total consumption of 2 billion pounds by 1960, but their rate of growth will be much lower than in the past. Nylon and other synthetic fibers are expected to reach an annual total of 750 million pounds.

The vast array of fabrics now produced will expand as a greater variety of textile fibers becomes available. Cotton fabrics still hold many large markets because of their durability, but no market is considered absolutely safe. Increased use of wool in blends with other fibers is expected to offset a decline in woolen and worsted fabrics. Rayon yarns and fabrics with their versatility and price advantages will continue to penetrate new markets. Staple and tow will show the greatest gains because of the increasing importance of mixed-fiber fabrics.

The importance of finishing may decline as new fibers become available with inherent chemical and physical properties which eliminate the need for finishes. Expanding research in textiles backed by a strong and growing chemical industry insures continued development of new fibers, fabrics, and finishes.

INTRODUCTION

It is, of course, impossible to predict future industrial activity with any great accuracy. The possibilities of war, changes in population growth, and changes in the standard of living are important factors affecting all business activity. Nevertheless, it is interesting and often worthwhile to make certain predictions about the future. To do this for the field of textiles necessitates neglecting seasonal and short-range variations as well as changes in fashions and living habits.

In the textile industry, the year 1951 marked a sharp recession; 1950 was very good, while 1949 was another recession year. It does not follow that this year will be a good one, but there are many indications that 1952 will see a return to normal activity in textiles. Many factors were responsible for the 1951 slump over and above the chronic overcapacity of the industry. It seems evident that there is a large pipe line between consumers and producers in textiles. Small changes in retail consumption are magnified into large changes in manufacturing and finishing activity.

By reviewing data on consumption of fibers for the past several years, it is possible to note certain trends and project them into the future. Of greatest interest, perhaps, is the competition between natural fibers, cotton and wool, and man-made fibers, viscose, acetate, and the new synthetics.

* Presented before the Rhode Island Section in Providence, R I, on January 25, 1952.

FIBER CONSUMPTION

Mill consumption of textile fibers for the last thirty years is shown in Table I *(1)*. Consumption of all fibers except silk increased greatly during this period, and the total fiber consumption has more than doubled. This is illustrated by the bar graph shown in Figure 1 *(2)*. The rapid growth of rayon and synthetic fibers is obvious.

No drop occurred in fiber consumption after World War II. The two factors, increased population and increased standard of living, not only offset the loss in wartime demand but resulted in continued growth of the industry. It is interesting to study the percentage figures for each fiber as shown in Table II. Cotton has been losing ground slowly for the last 20 years, even though its over-all consumption has

TABLE I

MILL CONSUMPTION OF FIBERS, U S

Millions of pounds per year

	Natural			*Man-made*		
YEAR	COTTON	WOOL	SILK	RAYON	OTHER	TOTAL
1920–24	2,818	366	43	26	—	3,253
1925–29	3,297	350	72	91	—	3,810
1930–34	2,688	270	68	169	—	3,195
1935–39	3,286	377	55	335	—	4,053
1940–44	4,968	586	13	611	26	6,204
1945	4,511	645	1	770	52	5,979
1946	4,803	748	7	876	56	6,489
1947	4,668	708	2	988	50	6,416
1948	4,461	705	7	1,150	75	6,398
1949	3,838	511	4	992	92	5,437
1950	4,720	637	8	1,351	145	6,861

SOURCE: *(1)*

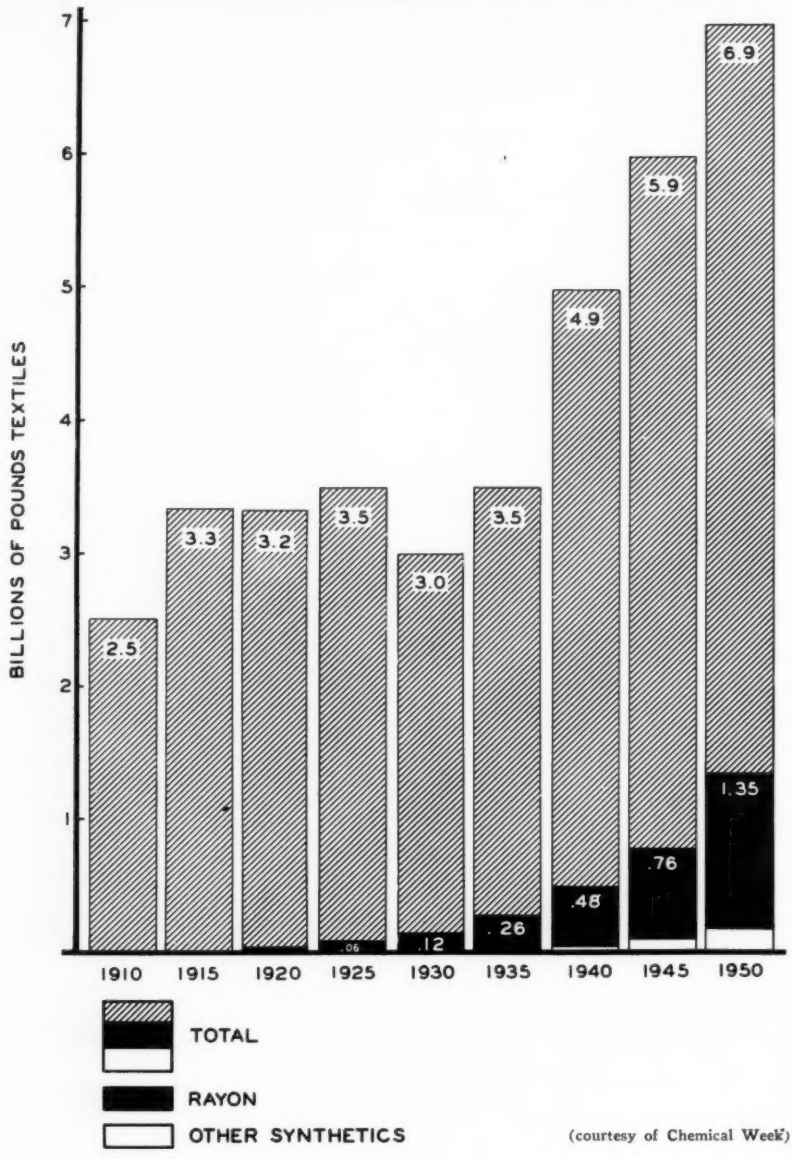


Figure 1
Synthetic and Natural Fiber Production
(Billions of Pounds)

TABLE II

MILL CONSUMPTION OF FIBERS, U S

YEAR	Percentage of Total: *Natural* COTTON	WOOL	SILK	*Man-Made* RAYON	OTHER
1920–24	87	11	1	1	—
1925–29	87	9	2	2	—
1930–34	84	8	2	5	—
1935–39	81	9	1	8	—
1940–44	80	9	—	10	1
1945	75	11	—	13	1
1946	74	12	—	13	1
1947	73	11	—	15	1
1948	70	11	—	18	1
1949	71	9	—	18	2
1950	69	9	—	20	2

SOURCE: *(1)*

increased. Wool has held its own between 9 and 11% of the total. Rayon's percentage of the total has more than doubled in the last ten years, and apparently it has been at the expense of cotton. The synthetic fibers have not yet reached an appreciable percentage of the total.

The consumption of textile fibers on a per-capita basis is shown in Table III *(3)*. These figures are estimates of the quantity of raw fibers made available to the ultimate consumers in the U S. Mill consumption data are adjusted for imports and exports of manufactured products and then divided by the annual population estimate of the Bureau of Census. The total column includes values for silk and flax, which are not shown.

Figure 2 shows the data in Table III plotted on a semilogarithmic chart. These charts are useful for determining trend lines since many items give straight lines when plotted in this form *(4)*. An increase in the per-capita consumption of any one fiber may be at the expense of another fiber, represent a new market, or be attributed to an increased standard of living. The depression period of 1930-34 is clearly evident in this figure.

Before attempting to predict consumption in the future, it is advisable to consider each fiber in greater detail. Cotton, which has been losing its position percentagewise, is still the predominate textile fiber. There are many factors which indicate that cotton will hold its own or even regain some of its losses. Great strides have been made in production techniques. More fertilizers are being used, more insecticides are in use, and mechanical harvesting is increasing rapidly. The western states have become more important producers of cotton, and they average twice as much cotton per acre in comparison with the country as a whole. Research on varieties of cotton has improved both fiber quality and production efficiency and will continue to strengthen cotton's competitive position. The Department of Agriculture and other agencies are conducting and supporting research on improvements in cotton fabric and fiber qualities. It is quite possible that cotton will become cheaper as the result of more efficient production and better as a result of research.

Rayon, the second largest fiber from the standpoint of consumption, has shown no evidence of losing its position. Rayon production may not expand at the same rapid rate as it did in the past twenty years, but it is probably quite safe to predict continued growth. Table IV *(5)* shows rayon production figures in five different categories for the last fifteen years. Note that total production has quadrupled in this period. The use of rayon in tire cord started just a few years ago and now rayon has over half the total market with production facilities as the limiting factor. Production of staple and tow forms of both viscose and acetate has grown rapidly in the last few years. It is quite probable that staple and tow production will expand more rapidly in the future than filament production. The increased use of rayon in the men's summer suit field is

TABLE III

PER-CAPITA CONSUMPTION OF FIBERS

Pounds per Year

	Natural		*Man-Made*		
YEAR	COTTON	WOOL	RAYON	OTHER	TOTAL
1892–94	17.9	3.8	—	—	22.5
1895–99	19.9	4.1	—	—	24.8
1900–04	23.0	3.0	—	—	26.9
1905–09	26.0	3.2	—	—	30.1
1910–14	25.0	3.3	—	—	29.5
1915–19	27.9	3.9	0.1	—	32.8
1920–24	24.4	3.8	.2	—	29.3
1925–29	26.0	3.4	.7	—	31.3
1930–34	20.6	2.5	1.3	—	25.3
1935–39	24.8	3.3	2.6	—	31.5
1940–44	35.2	4.5	4.4	0.2	44.5
1945	30.8	4.6	5.3	.4	41.2
1946	31.8	5.2	5.8	.4	43.5
1947	27.5	4.9	6.1	.4	39.0
1948	28.0	5.1	7.2	.5	41.0

SOURCE: *(3)*

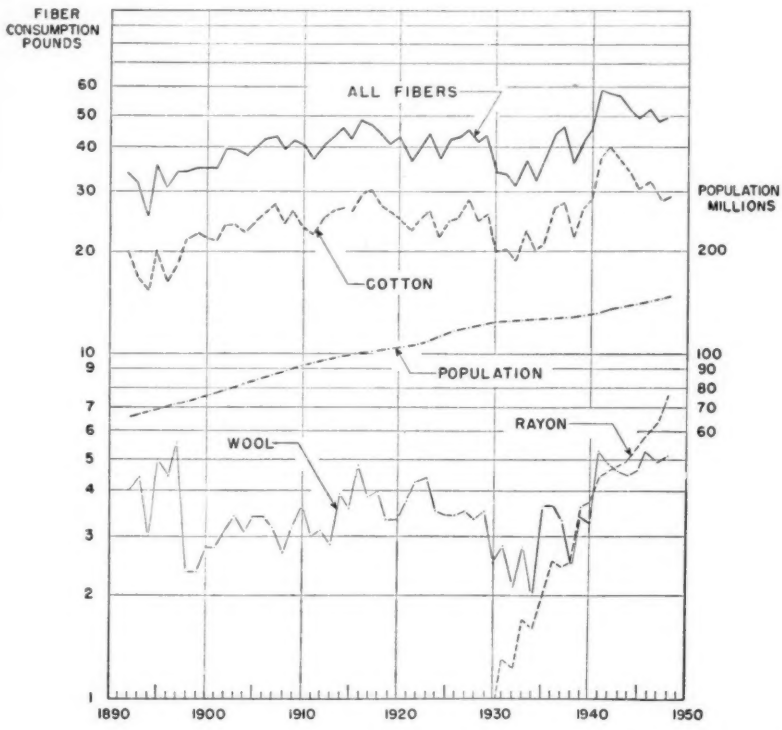
well known. An even newer use of rayon is in the field of carpets. One estimate *(6)* has placed rayon staple at 23% of the total carpet yarn consumption for the first ten months of 1951. It has been observed that whenever rayon finds a new market in which it can compete on the basis of price and performance, it usually holds that market and expands its position.

Changes in end use consumption of cotton, wool, and man-made fibers from 1937-49 are shown in Table V *(7)*. The greatest increase occurred for the man-made fibers. Had it not been for a marked increase in exports, cotton would have shown a net loss for this period. In connection with these changes in end uses, it should be remembered that the population increase between 1937 and 1949 was 16%.

Wool presents a special problem from the standpoint of predicting future consumption. The high consumption figures of the past few years represent to some extent a demand built up by the shortage of wool for civilian consumption during the war. The extremely wide fluctuations in the price of wool during the past year reflect the fact that demand has been catching up with supply. This is illustrated in Figure 3 *(8)*. However, production is rising on a world-wide basis, and this should help maintain reasonable price levels. In certain respects wool is a luxury fiber, and many of its end uses are vulnerable to rayon and the new synthetic fibers. On the other hand, blends of rayon and wool or the synthetics and wool seem to offer the most in the way of performance, and it is not evident that wool will be eliminated as a major textile fiber.

The synthetic fibers, except nylon, are so limited in production at present that no clear-cut trends have been established. The present and planned production figures for the man-made fibers are shown in Table VI. Even by 1953 the total production of synthetics will be less than 4% of the total fiber consumption. It seems to be universally accepted that the new synthetics will continue to grow in importance. One estimate of their growth is shown in Table VII *(9)*. Other investigators have estimated that, by 1962, total production of Acrilan, Dacron, dynel, and Orlon will be 473 million pounds *(2)*. Plants to manufacture synthetic fibers in these quantities will not be built unless consumer acceptance is obtained for all the present and planned output.

It is possible to derive fiber-consumption figures for the year 1960 by projecting the data shown in Tables I to IV. The resulting figures must be modified in light of the many factors already discussed. It is also necessary to make certain assumptions. It is assumed that this country will not be at war, but will maintain a sizeable military force, that the population by 1960 will be well over 170 million, that the standard of living will continue to increase, and that 1960 will be an average year. The figures for fiber consumption in 1960 estimated in this way are shown in Table VIII. These estimates show an increased consumption for all fibers even though both cotton and wool will lose ground on a percentage basis. The synthetic fibers as a class are so new that projection methods can not be used to forecast future production or consumption figures. For want of a better value the esti-



(courtesy of U S Dept of Agriculture)

Figure 2
Per-Capita Fiber Consumption

TABLE IV

RAYON PRODUCTION, US

Millions of Pounds per Year

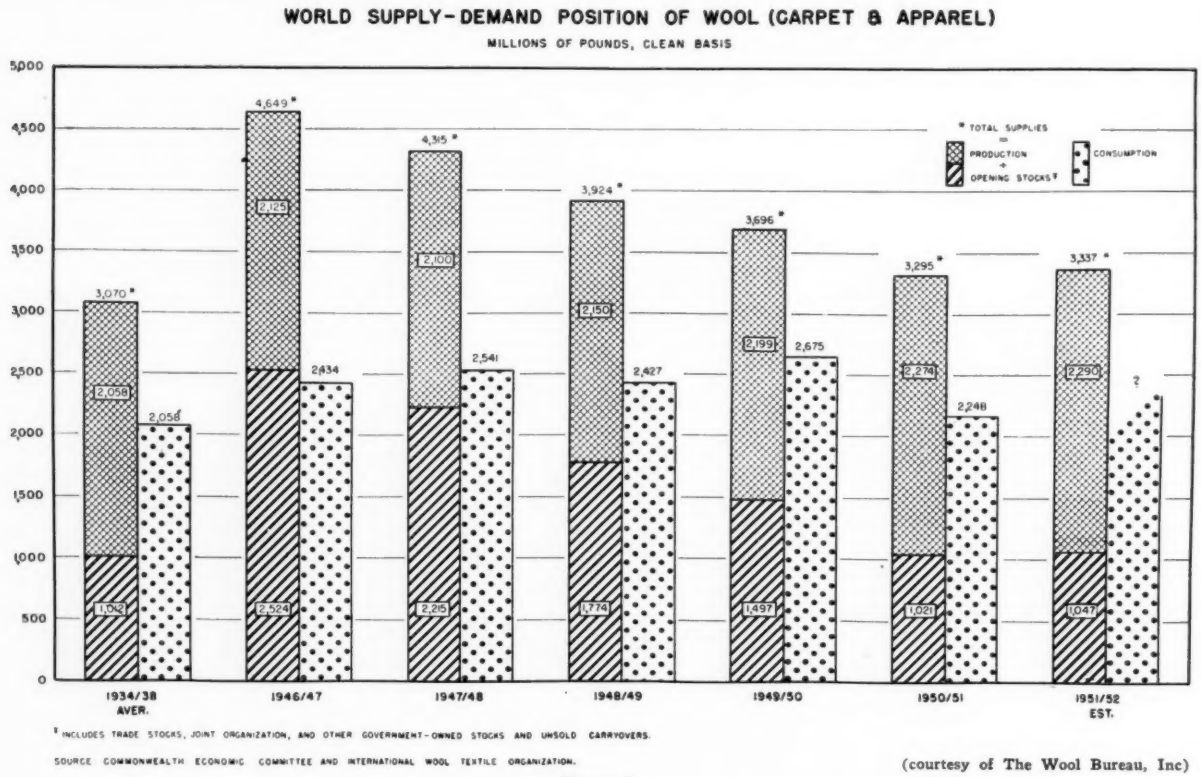
YEAR	*Filament Yarn* VISCOSE & CUPRA		ACETATE	*Staple & Tow* VISCOSE	ACETATE	TOTAL
	Nontire Yarn	Tire Yarn				
1935	202	—	56	4	0.3	262
1936	210	0.3	63	10	2	290
1937	237	0.9	82	17	4	341
1938	178	4	76	26	3	288
1939	223	9	97	45	6	380
1940	248	10	133	71	11	471
1941	269	18	164	105	17	573
1942	289	22	169	128	26	633
1943	292	46	163	130	32	663
1944	281	102	172	128	40	724
1945	267	182	175	129	39	792
1946	278	213	186	133	44	854
1947	296	230	222	168	60	975
1948	313	249	294	185	84	1,124
1949	263	281	255	130	65	994
1950	317	310	327	189	117	1,260

SOURCE: *(5)*

mate in Table VII has been used. The total of approximately 2.8 billion pounds for man-made fibers is conservative in comparison with the figure of more than 3.0 billion pounds estimated by another investigator *(10)*.

Needless to say, many developments could throw these 1960 consumption estimates completely off. It is within the realm of possibilities that both cotton and wool could price themselves out of a large share of their present markets. An inexpensive way may be found to make rayon as washfast and as durable as cotton. The new synthetic fibers may be greatly reduced in price. Some new fiber may be developed before 1960 with price and performance that dominate the field.

Regardless of the fact that use of cotton, wool, and linen date back hundreds or thousands of years, consumers are not firmly attached to specific fibers or specific fabrics. Though frequently overruled by the dictates of fashion, price and performance are the two factors that govern consumer purchases of textiles.



(courtesy of The Wool Bureau, Inc)

Figure 3
World Supply-Demand Position of Wool, 1952

Note: World consumption of wool during most of the postwar years to date exceeded annual production and the prewar rate of consumption. This was made possible by the liquidation, over a period of five seasons, of two and one quarter billion pounds of unsold wool accumulated during World War II. Most of this was owned by the British Dominion wool growing countries, and some by the US government, by the United Kingdom and by South American exporters.
At the same time world production of wool increased each year as sheep flocks were expanded to meet rising wool requirements.
During 1951, world consumption of wool fell sharply while inventories of processed wool and finished wool goods—accumulated during the inflationary period following the start of the Korean War—were being liquidated. This pattern was characteristic of all the textile industries in the world. There are indications that world consumption of wool has been in a slowly rising trend since the fourth quarter of 1951.
At the beginning of the current wool season (1951/52), world trade stocks were slightly higher than a year ago. Supply stocks representing unsold carryovers in the hands of wool growers, increased the reservoir of available new wool supplies.

TABLE V

CHANGES IN END-USE CONSUMPTION OF FIBERS, 1937-1949

Millions of pounds and Per Cent

END-USE	Total Pounds 1937	Total Pounds 1949	Per cent Change from 1937 to 1949 Total	Cotton	Wool	Man-Made
Men's and Boy's	1,115	1,234	+11	+6	—6	+179
Women's and Children's	931	1,178	+27	—5	+100	+89
Household use	1,015	1,268	+25	+19	+35	+165
Industrial uses	1,556	1,592	+2	—19	+3	+930
Exports	98	467	+377	+285	+687	+2,469
TOTAL	4,715	5,739	+22	+5	+30	+218

SOURCE: *(7)*

TABLE VI

PRESENT AND PLANNED PRODUCTION CAPACITY OF MAN-MADE FIBERS IN THE UNITED STATES

	Millions of lbs /yr 1951	1953
Nylon (in production)	115	170
Nylon (planned)	..	50
Dacron Filament (planned)	3	12
Dacron Staple (planned)	..	25
Orlon Filament (in production)	1	8
Orlon Staple (planned)	..	30
Acrilan (planned)	1	30
Dynel (in prod and planned)	5	26
Saran (uncertain)	25	40
Vinyon	2	3
Total Synthetic Fibers	152	394
Vicara (in prod and planned)	5	25
Glass	48	70
Viscose Staple and Tow	218	360
Viscose Filament (high tenacity	360	504
Viscose Filament (regular)	339	277
Acetate Staple and Tow	146	172
Acetate Filament (regular)	381	401
Total Cellulosic Fibers	1444	1714
Grand Total Man-Made Fibers	1649	2203

TABLE VII

ESTIMATED PRODUCTION OF SYNTHETIC FIBERS

Year	Millions of Pounds
1950	145
1953	400
1958	500
1960	750

SOURCE: (9)

TABLE VIII

ESTIMATED CONSUMPTION OF FIBERS IN 1960

Fiber	Millions of Pounds	% of Total	% Change From 1950
Cotton	5,377	60.7	+ 13.9
Wool	700	7.9	+ 10.0
Rayon	2,027	22.9	+ 50.0
Synthetics	750	8.5	+417.2
Total	8,854	100.0	+ 29.2

FABRIC DEVELOPMENTS

So many changes have taken place in fabrics during the last few years that a prediction of future development becomes almost impossible. When people change their habits, the end-use patterns of fabrics change. Sport shirts and slacks have replaced the old-style overalls, which were the badge of working men for many years. Perhaps the young ladies with their fad for blue jeans have saved the old blue-denim fabrics from extinction.

Cotton fabrics have had strong competition not only from rayon but from paper and plastics. Fortunately, cotton-fabric manufacturers are beginning to fight back with research and development and intelligent styling. Probably cotton's greatest asset is serviceability and durability. But what market does cotton have that can be considered safe? The dress-shirt field is a major end use for cotton, and certainly nylon shirts have not proved a big threat. Rayon manufacturers are actively working on new fabrics and finishes to gain a bigger share of this market. Orlon and Dacron dress shirts may well prove to be major competition for cotton if they can ever be priced low enough. Another factor which must not be overlooked is that men many some day switch from dress shirts and ties to sport shirts for business wear.

The price of raw cotton, and indirectly manufactured articles, is under government control along with many other agricultural products. This may prove to be a serious handicap in the future as competition between fabrics, plastics, and paper becomes more intense. If cotton ever came down to 20 cents per pound, double its prewar price, the outlook for cotton fabrics would be very much brighter.

The greatest uncertainty of fabrics of the future is in the field of woolens and worsteds. As a fiber, wool may well hold its own because of greater use in blends with other fibers. Woolen and worsted fabrics, on the other hand, will decline in importance unless all present indications are false. The keynote of the future for wool seems to be in blends.

As rayon has become a more versatile fiber, or family of fibers, it has been made into a wider variety of functional fabrics. Viscose and acetate filament fabrics made with regular yarn seem to have the most limited opportunities for expansion. This is confirmed by the fact that only small increases in production of filament textile yarns are planned by manufacturers *(11)*.

Spun fabrics and blends of acetate and viscose with other fibers can be expected to continue their rapid growth. Rayon suitings have already gained a big share of the summer-suit field and their next objective will be in medium- and winter-weight suitings. Here, there will be competition with the newer synthetic fibers as well as with the traditional fiber, wool. Viscose staple and tow represent the cheapest apparel fiber available, particularly in view of the low waste factor compared with raw wool or raw cotton. It must be remembered that viscose and acetate manufacturers have a big advantage in that they can produce special filaments or fibers to capture new markets.

A study of the properties of the newer synthetic fibers reveals that each one has unique features along with certain disadvantages. Dynel has very strong points in price, chemical resistance, and resistance to burning. Its use in blankets and socks minimizes its sensitivity to heat. Orlon acrylic fiber has an amazing resistance to sunlight and outdoor exposure, but certainly many potential applications will be barred by the fact that it burns. If this drawback can be overcome, Orlon will offer strong competition to cotton in many specialized outdoor applications. Acrilan acrylic fiber, which resembles Orlon in certain respects, has an advantage of better dyeability.

Dacron polyester fiber, in staple form, has resiliency and stress-strain characteristics very much like wool. The fact that Dacron fabrics are not sensitive to humidity and do not felt must be evaluated in view of their tendency to pill and to

develop holes or stains from cigarette and pipe ashes. Blending seems to be the best way of utilizing Dacron's advantages and minimizing its shortcomings. Both cotton and rayon may expect competition from Dacron filament fibers. Shirts, sheets, and curtains are possibilities for Dacron fabrics in which serviceability and life span may offset price differences.

Fabrics made of the new synthetic fibers have found many specific but small-volume end uses where they are very satisfactory and performance far outweighs price. Vinyon and Saran fibers typify this type of specialty use. Manufacturers of dynel, Orlon, Dacron, and Acrilan are contemplating markets more like rayon and nylon have found in large-volume apparel, household, and industrial uses.

NEW FINISHES

Quality characteristics of textiles, such as resiliency, warmth, color, or luster, depend upon the fiber, the fabric structure, and the finish. In the past, finishing has been very important for producing desired qualities in textiles. In the future, the importance of finishing may decline because the industry can provide the desired characteristics by selecting the proper fiber from the growing number available.

Each fiber, including the newer ones, needs a finish of one type or another to improve its usefulness. Important consumer-performance characteristics of cotton fabrics have been studied in detail by the National Cotton Council (*12*). Improvements in resiliency and luster are needed for cotton fabrics in a wide range of end uses. The problem is being attacked from the standpoint of fiber characteristics, fabric structure, and finishing techniques.

A recent listing of some current research work devoted to cotton illustrates the wide variety of subjects under study (*13*). Furthermore, textile manufacturers, finishers, and chemical suppliers devote an undisclosed amount of effort to improvements in cotton finishing. With both the volume and quality of research on cotton increasing, many new finishes can be expected.

Rayon fabrics need better dimensional stability and greater durability to wear and laundering. Two new finishing processes were announced last year for stabilizing viscose fabrics, one by American Viscose Company and the other by Dan River Mills. Many new developments may be expected along these lines since improved rayon fabrics could enter some very large markets held by cotton.

The use of resins for producing stabilized or crease-resistant finishes on rayons has increased very rapidly in the last few years. About 29 million pounds of urea- and melamine-formaldehyde resins were sold to the textile and paper industries in 1950 (*14*). It is estimated that at least half of this amount was applied to rayon fabrics. Two new resins have entered the field recently, and others will be developed in the future.

Woolen and worsted fabrics could stand improvement in strength, resistance to wear, and washability. Methods have been developed for controlling shrinkage of wool, primarily for military fabrics, and greater exploitation of these finishes in civilian markets will follow. Some of the research and development studies needed by the woolen and worsted industry have been listed together with notes on current research projects devoted to wool (*15*). Although wool may have been neglected in the past from the standpoint of research, it is now receiving more attention in laboratories all over the world.

The new synthetic fibers have brought with them a number of new finishing problems. These fibers are thermoplastic and their fabrics often require heat treatments for stabilization. These fibers and their fabrics are difficult to dye. Ways have been found to dye all the new fibers, but the results are not up to the standards for cotton and wool in quality or variety. Many problems in dyeing blends of the new fibers remain to be solved. Better finishes for preventing buildup of static charges are urgently needed. Probably no one knows how much research and development effort is devoted to the new fibers, but it must be tremendous. The results will appear in the years ahead.

Fire retardents, water repellents, mildew inhibitors, mothproofers, and other developments of the chemical industry are specialty finishes for textiles, which can be improved or made more economical. Fortunately, the chemical industry is strong and continuing its rapid rate of growth. There seems to be no shortage of smaller chemical companies devoted to textiles, and they are very useful for translating new chemical developments into practical finishes.

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(*9*) *Journal of Commerce*, June 11, 1951
(*10*) Ewell, R H, *Chem Eng News* **29**, No 50, 5228 (1951)
(*11*) *Rayon Organon* **22**, No 12 (1951)
(*12*) Buck, G S, and McCord, F A, *Textile Research J* **19**, 216, 715 (1949)
(*13*) "The Cotton Research Clinic 1951", National Cotton Council, Memphis, 1951
(*14*) "Synthetic Organic Chemicals", *U S Tariff Commission Report* No 173, 1951
(*15*) "Suggested Research and Development Studies for the Woolen and Worsted Industry with notes on current Research, 1951, Supplement", The Wool

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Report of Mid-West Section Outing

June 25, 1952
Lake Lawn Lodge, Delavan, Wis

THE annual outing of the Mid-West Section was held at Lake Lawn Lodge, Delavan, Wisconsin, on June 14, 1952, and was attended by 178 members and guests.

A soft ball game was held in the morning, the salesmen defeating the millmen by a score of 19 to 5. After a buffet lunch most of the members and guests headed for the golf course. The nongolfers played shuffle board and horseshoes. In the early evening cocktails were served followed by an excellent dinner. This was followed by the participants of the day's activities being awarded tropies and prizes of many descriptions. Frank F Myers, Chairman of the Outing Committee, assisted by his committee members, awarded the prizes which were made available through the generosity of mill and supplier friends.

GOLF WINNERS

Guests: Low Gross 1st—F Snyder 77. 2nd—J Dutcher 78.

Members: Low Gross 1st—A Rathke 80 and winner of Millman's Trophy. 2nd—K Harms 81. 3rd—L Mendelert 81. 4th—F Myers 82

Net scores on the Peoria System:

Class A: 1st—G Kremmers 65. 2nd—H Tetzlaff 67. 3rd—K Geise 72.

Class B: 1st—R E Nelson 64. 2nd—W C Snead 65. 3rd—E Scroeder 65.

Class C: 1st—E Bonardi 65. 2nd—P Willgerath 66. 3rd—B Fay 66.

Class D: 1st—R Waski 70. 2nd — F Acker 70. 3rd—R Carr 71.

Shuffleboard: 1st—M Morris. 2nd—L Blank.

Horseshoes: Singles: B Isenogle. Doubles: F Schiller, Mr Coltry.

Longest Drive: C Mendelert.

Nearest to Pin: T Ratajczak.

Pro's Raffle: E Bonardi.

All the members of the Outing Committee headed by Frank F Myers are to be congratulated on making the 1952 Annual Outing the huge success it was.

Respectfully submitted,
V H LAWRENCE, *Secretary*

Western New England Section——

PROBLEMS PRESENTED BY THE NEW FIBERS*

HERMAN P BAUMANN
United Piece Dye Works, Lodi, N. J.

H P Baumann

A practical chemist discusses the dyeing problems that have been raised by the advent of new synthetic fibers into the textile field. The dyeing of nylon, one of the older, wholly synthetic fibers, is already quite well understood. The more recent new fibers display greater reluctance than does nylon to accept dyes by old methods, some hardly being dyeable at all by old procedures.

With the discovery of the use of carriers, of the effectiveness of temperatures from 205 to 250°F, and of the use of cuprous copper in promoting dyeing, however, methods are now available for dyeing Dacron polyester fiber, dynel, Acrilan acrylic fiber, and Orlon acrylic fiber. These procedures are all discussed, and especially their use for coloring mixtures of new and old fibers and the fastness to light that may be expected.

In the last section of his paper, the author gives simple staining procedures by which the new fibers can be readily distinguished. Photomicrographs of fiber cross sections at a magnification of 150 can also be used simply and effectively to differentiate various fibers.

INTRODUCTION

THE problems which the new fibers present to the dyer and colorist are manifold and at present seem almost insurmountable. In producing these fibers the manufacturers have selected those condensates and polymers that promised most in strength, abrasion and weather resistance and all-round serviceability. They have not been concerned with dyeability. There are some, such as Velon and Saran, which are completely undyeable. Mixed-fiber fabrics are more difficult to dye than straight yarns. Weavers and designers, eager to exploit the publicity value of the new fibers, bring out new blends and new constructions every day, without any regard for the problems with which the dyer must cope in attempting to color them. Dyeing problems, however, are no deterrent to a fashion expert or merchandiser.

Yarn manufacturers eventually find that their products give the colorists trouble. Then, because alteration of a copolymer composition is easy, they alter the fiber chemically. However, this just means that the dyer is continually being asked to dye fibers of new constitution, with attendant differences in dye affinity, until one or the other, the dyer or the manufacturer, must cry quits.

Remember, when acetate rayon was first produced, no adequate dyes for it existed, but suitable dyes were later invented. We may be today in the position of those early dyers, and new dyes may be just around the corner.

Now, in mentioning the problems that the new fibers pose, I am not perpared to give all the remedies. The best I can do is to present an over-all picture of the situation today, to bring you up to date on the latest information from the various dyestuff companies, and to make some attempt at classification and comparison of dyeing characteristics.

* Presented before the Western New England Section in Shelton, Conn, on January 25, 1952.

DYEING THE NEW FIBERS

DACRON——Dacron polyester fiber is being manufactured at the rate of about 75,000 lb per month; this is just a prelude to its production on a much larger scale. A small percentage of it is in filament form, but most of it is in spun form. Although at first it was blended with wool for suitings, these mixtures are not working out too well in actual service, even though they do seem to be generally better than nylon and wool mixtures.

Dacron can be dyed with dispersed acetate colors in the presence of carriers or assistants in the dye bath. Many carriers have been found and studied, of varying degrees of effectiveness, and with varying effect on the light fastness of the dyes. These dye assistants are organic compounds, some of which are soluble in water and others of which require emulsification before dispersion in the dyebath. The compounds studied are phenols, naphthols, organic acids, and related derivatives, such as chlorophenols, cresols, and nitrophenols; naphthalene derivatives are also under consideration.

The assistant, for example tetralin, is emulsified with a concentrated detergent, preferably of the nonionic type, and is added to the dyebath with the color. In the case of the phenols, it is recommended to dissolve the carrier with caustic soda, and then to neutralize the solution before adding it to the dyebath. The amount of assistant depends on the shade and may vary from 2 to 8%; one recommendation is for 2% benzoic acid on the volume of the liquor.

Dacron polyester fiber is dyed at temperatures of 205 to 212°F for one to 1½ hours and is then thoroughly soaped. Soaping improves the fastness to crocking, and, incidentally, it has been shown that real soap is superior to the synthetic detergents for this purpose.

Some of the best dyes for lightfastness are Eastman Fast Blue GLF Conc, Fast Red GLF, Fast Yellows GLF and 4RLF, Celliton Pink RFG and Brown 3RA Conc and Cibacet Red 3B. Celliton Blue GA has sufficient fastness to light to be used in dyeing deep blues and navies.

One interesting phenomenon connected with acetate-color dyeings on Dacron is the difference in light fastness compared with the same dyes on acetate rayon. For example, Violets B and 6B are equally good on acetate, but the 6B is poor on Dacron, Celliton Blue AF, good on acetate, is poor on Dacron but Celliton Blue GA, just mentioned, is better on Dacron. Another point is the effect the carriers have on light fastness. It appears that some of the carriers have a bad influence. This bad effect is reduced by thorough soaping after dyeing, just as soaping reduces crocking. However, it should be noted that light exposures show a discrepancy between sunlight and Fade-Ometer fading. Normally, 20 hours Fade-Ometer exposure equals 25 hours direct sunlight, but, in the case of acetate colors on Dacron, the Fade-Ometer shows considerably greater fading,

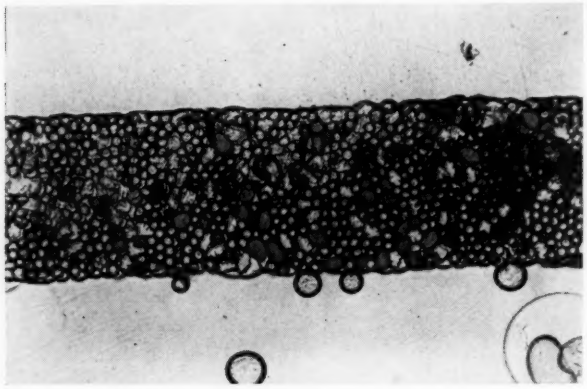


Figure 1
Dacron, Viscose, Wool
Cross Section X 150
By E R Walter, Carbide & Carbon Chemicals Div.
Note circular shape of sections of Dacron polyester fiber.

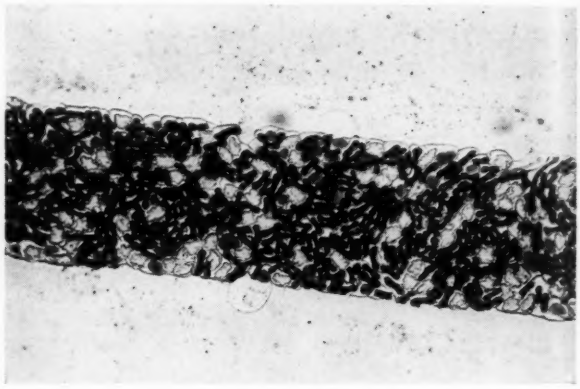


Figure 2
Orlon, Viscose, Wool
Cross Section X 150
By E R Walter, Carbide & Carbon Chemicals Div.
Note typical dog-bone shape of sections of Orlon acrylic fiber.

both in depth of color and in cast.

Recently, DuPont has produced at least three new dyestuffs which exhibit exceptionally good light fastness on Dacron. These are

Celanthrene Red P 30
Celanthrene Orange P 34, and
Celanthrene Blue P 37

This is an instance of the invention of new dyeing materials, perhaps a better answer to the problem of dyeing the newer synthetics: *New dyes, rather than new techniques.* These three new dyestuffs have a light fastness on Dacron of 160 hours in a Fade-Ometer.

Some Dacron-filament fabric is being dyed. The fibers exhibit a marked dye selectivity, just as nylon did in the early days of its manufacture. Such variations will have to be worked out by the fiber maker.

Dacron and wool blends are dyed with acetate colors for the Dacron, all of which stain the wool, plus acid colors to fill out the shade on the wool. Dacron is also being woven with viscose, the Dacron in such blends being dyed with dispersed acetate colors and the rayon with substantive colors in a one-bath process. A blend of Dacron with nylon, however, gives dyers cause to become gray early.

DYNEL AND ACRILAN——Dynel and Acrilan can well be considered together. Their dyeing characteristics are similar, and both are copolymers of acrylonitrile with another vinyl compound.

Dynel has been suggested for use in a multitude of various apparels and industrial and household fabrics, from anode bags to shoes. However, its tendency to stiffen under heat and to crease under sudden changes in temperature limit its use to such things as blankets, carpets and men's socks, where it will not suffer high temperatures in drying, and where its silky softness and warmth will show to advantage.

Dynel is most easily dyed with dispersed acetate colors. The temperature of the dyebath is raised to 205-212°F. This high temperature is necessary to exhaust the color. Excessive amounts of dispersing agent will retard dyeing. The dyeing temperature delusters the fiber, probably because it causes swelling. The fiber can be relustered by adding Glauber's or common salt to the dye bath, and this salt addition is helpful in obtaining deep shades. The amount of salt recommended is up to 6% on the volume of the bath. Dry heat up to 240°F is also recommended to reluster dynel, but it cannot be dried or heated above 250°F without stiffening the fiber. Sudden changes in temperature, such as cooling the bath too rapidly, can cause permanent creases in dynel fabrics.

Acetate dyes build up well on dynel, but not on Acrilan. They are faster to perspiration on dynel than on acetate rayon. By the use of paraphenylphenol as a carrier in the dyebath, deeper shades can be obtained with acetate colors, but it is recommended that no more than 2% paraphenylphenol on weight of fabric be employed.

It has been discovered that cuprous ion is effective in promoting the dyeing of dynel with acid colors. This method has been successfully employed to dye dynel in stock, top, and package form, and its adaptation to piece goods is being attempted. A mixed formulation of acetate and acid colors has been recommended especially for deep shades. The blue component should be Anthraquinone Blue SWF, while the red and yellow components would be fast-to-light acetate dyes. In this case the cuprous-ion method is employed without the use of a carrier. However, where all acid dyes are used, a carrier is needed. As is the case with Dacron, dyeings on dynel show better ratings for light fastness when tested in sunlight than when tested in a Fade-Ometer. On mixed blends of dynel and wool, the wool takes up most of the color. The fiber components must therefore be dyed separately before being blended.

Acrilan is being produced at a rate of about 1,000,000 lb a year, but Chemstrand Corp is building a plant in Decatur, Alabama, which will produce about 30,000,000 lb annually.

Acrilan has better affinity for acid colors than dynel. Certain acid colors can be dyed on Acrilan with sulfuric acid, such as Alizarine Blues, Alizarine Cyanine Greens, Fast Light Yellow, Wool Fast Orange and Alizarine Rubinole. Dyes are exhausted with 4% sulfuric acid, swf, without a carrier. Dyeings on Acrilan are not so fast to light or to washing as the same dyes on wool. Acetate dyes can be applied at temperatures of 195°F or over, but their wash fastness is only fair.

ORLON——After several starts, the manufacturers of Orlon acrylic fiber have settled on types 81 and 41. There is no assurance, however, that these will be the final choices. Type 81 is 100% acrylonitrile in filament form, while type 41 is chemically the same, in staple form. This is the fiber that offers so high a resistance to weathering and chemicals, but which is so difficult to dye that some dye houses will simply not accept it except as effect threads.

Acetate colors have poor affinity for Orlon. The cuprous-ion method has been employed to color it with acid dyes. In this process the fiber is treated before and during the dyeing operation with a copper salt together with a reducing agent that is strong enough to reduce the cupric ion to cuprous ion, but not so strong as to reduce the dyestuff. Hydroxylamine in the form of its hydrochloride or sulfate meets these

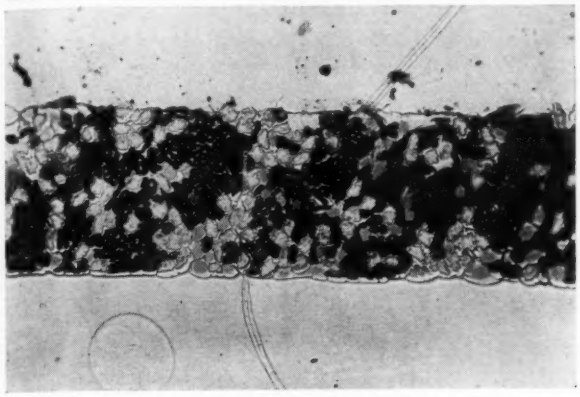


Figure 3
Dynel, Viscose, Wool
Cross Section X 150
By E R Walter, Carbide & Carbon Chemicals Div.
Note horseshoe shape of dynel section.

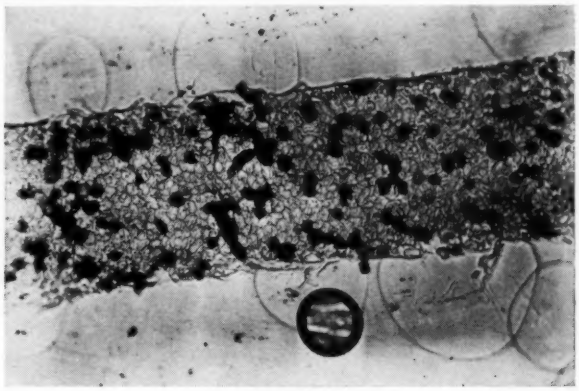


Figure 4
Acrilan, Wool
Cross Section X 150
By E R Walter, Carbide & Carbon Chemicals Div.
Note lima-bean shape of sections of Acrilan acrylic fiber.

specifications for a reducing agent. Another reducing agent is glyoxal, by the use of which it is claimed that the percentage of copper sulfate may be substantially cut in dyeing type 81 Orlon at 250° F.

By this cuprous-ion — hydroxylamine method, certain acid dyes can be applied to Orlon, notably Chinoline Yellow, Acid Orange, Fast Red A, Fast Scarlet BA, Brilliant Crocein and Alizarine Supra Blue A. Recently DuPont has brought out three new dyes for Orlon acrylic fiber:

Acid Green P 45
Acid Violet P 46
Acid Orange P 40

These have good light fastness, and may well be the start of a complete line of suitable colors. Hydroxylamine sulfate alone seems to have the property of fixing acid colors, possibly by virtue of its high acidity. Some one should investigate this phenomenon.

It is reported that heat affects the ability of Orlon to absorb dyes. Any process, such as framing goods after boil off or can-drying sized warps, causes a decrease in dye affinity. Naturally, an uneven heating will produce uneven dyeings.

The dyeing temperature should be at least 208°F. This is going to make it very difficult for the ordinary dyer who uses standard equipment. In the cuprous-ion process, additions of phenol or benzoic acid produce considerably brighter shades.

Another interesting, but complicating, characteristic of Orlon acrylic fiber is the effect of surface-active agents in the dyebath. The sulfated fatty alcohols and other fatty detergents cause much weaker dyeings. It is therefore recommended that the Alkanol WXN type be used.

Orlon filament, type 81, has a silky hand. Even small percentages of it in conjunction with nylon produce a silkier, less waxy feel. Where such fabric mixtures have been introduced, the nylon has been dyed with acetate colors, but the Orlon remains undyed.

Some Orlon has been printed with vat colors, but results are unsatisfactory. Acid colors as well as acetate colors can be applied in printing if steaming is carried out under pressure. Chrome colors are dull; Diphenyl Black gives only a grey. Here is a sample of Orlon printed in various colors with Aridye printing pigments.

NYLON——Nylon is big business today. It is estimated that about 194,000,000 pounds have been produced in 1951. The Chemstrand Corp is building a plant which will augment this capacity by 50,000,000 additional pounds by 1953.

The dyeing and printing of all nylon fabrics have been thoroughly studied, and their characteristics are well known. The present difficulties with nylon are mostly operational. However, blends of nylon with other fibers continue to be a problem.

Nylon flat goods must be heat-set, but whether to heat-set and then boil off, or to boil off first, is often asked. Taffetas may be boiled off and bleached or dyed on the jig, then set afterwards. Woven seersucker sheers do not need setting, but, whether set or not, have a tendency to wet out unevenly and to exhibit breaks. They should be boiled off on the Hinnekin machine, or on sticks as in the old days of silk.

Setting often yellows nylon, especially if the setting is too hot or the time too long. It can then be bleached with Textone or peracetic acid. In the use of peracetic acid the strong acid must be neutralized in the bath with caustic soda. Tendering is negligible, even though the bleaching is carried out at 170°F. Hypochlorites should never be employed in bleaching nylon.

If nylon sheers are to be dyed or printed, they must first be heat-set. They can then be bleached or dyed on the box. Drying is a problem. Moisture must be removed by hydroextraction, not by suction. Further, as sheers fly about in a loop drier, an air-lay drier is indicated. However, they may also be opened out wet, mangled and dried on the frame; or first hydroextracted, then dried on a frame or in an air-lay drier. If sheer nylons are dyed on a jig, they are simply put through a mangle and dried on a frame or on a Palmer.

Prints on nylon sheers are likely to flush in steaming. Shallow engravings with fine ground should be employed, with a high-solid-content gum and no hygroscopic agents in the pastes. Dry steam with some pressure is preferable. In the printing of nylon the solubility of the print color in the paste is important. In printing silk or wool with acid and direct colors there is a certain tolerance in this condition, and dyes such as Direct Scarlet B or Chinoline Yellow, which normally form cloudy colloidal suspensions in cooled print pastes, yield good prints on these fibers. Not so on nylon. This fiber, because of its hydrophobic nature, will not absorb dyes unless they are in good solution. Sublimation, spewing of print patterns and poor water fastness of prints can be avoided by selecting dyes of good solubility in print gum.

Acetate and nylon mixtures are readily dyed with acetate dyes, but in a few cases, notably with reds and oranges, different shades are obtained on the two fibers. In such cases, Solacet dyes offer good union effects.

IDENTIFICATION OF THE NEW FIBERS

There have been no published methods for quickly identifying the new fibers, although there are tentative methods for separating these fibers by their different solubilities in certain chemicals. For example, we know acetate rayon and dynel are soluble in acetone. Nylon is dissolved by formic acid. Also, boiling 70% H_2SO_4 dissolves silk, viscose, cotton, acetate and

nylon, but wool, Vicara, Dacron, Acrilan and Orlon are not dissolved. Boiling 50% caustic soda will disintegrate Dacron, while dynel, Acrilan, nylon and Orlon are unaffected.

STAINING——However, to identify these new fibers quickly in a mixture with others requires a stain. I attempted to find a stain which would differentiate them in the manner that the available identification stains, such as Neocarmine and the Calco and Geigy stains, can differentiate the old fibers. For example, Calco stain dyes wool, silk, cotton, viscose, Bemberg, acetate and nylon different colors, but the newer synthetics are light tan or colorless. Similarly, the Geigy stain shows good differentiation of the commoner fibers but leaves the newer ones very lightly tinted.

Let us assume we have made this test, and find we have a fiber of the latter group. It is to distinguish these that we wish to devise a test. Here is a chart of the properties of nylon, Acrilan, dynel, Dacron, and Orlon. I put them in this order N-A-Dy-D-O, which is in descending order of their dyeability.

Legend: S=Stain; T=Tint; U=Uncolored.

	N	*A*	*Dy*	*D*	*O*
Acetate Colors	S	T	S	S	T
Acid Colors	S	U	U	U	U
Acid Colors plus Acid	S	S	T	U	U
Basic Colors	T	T	S	T	T
Capracyls	S	T	T	T	T

Chromorhodine BR is a bright pink basic dye, which stains dynel, tints Orlon, but leaves Dacron white. We therefore mix the following to prepare a disitnguishing stain:

1 part Anthraquinone Blue SWF (Pr 12)
1 part Chromorhodine BR
1 part Celliton Fast Yellow GA (Pr 242)

Weigh out 0.5 g of the mixture, dissolve in 200 ml water, bring to the boil, add 1 ml acetic acid, 56%, and boil the sample 2-3 minutes in the solution. Rinse well at 120°F. We find the following colors on the new fibers:

Fiber	*Distinguishing color*
Nylon	dark green
Acrilan	grey
Dynel	red brown
Dacron	yellow
Orlon	pink
Wool	black

This test can be run in the presence of wool, which will dye black. Orlon type A3, now obsolete, dyes light blue.

Orlon can be distinguished from acetate, Dacron and viscose by the use of Chromorhodine BR alone, which stains Orlon pink and leaves the others undyed.

Nylon, if it has not already been identified with the Geigy stain, which, incidentally, shows good distinction from wool, can be identified with Sulfo Rhodamine B Ext. Dyed in an acid bath, nylon is fluorescent pink, while Acrilan, dynel, Dacron and Orlon remain white.

MICROSCOPE——Besides observations of staining and solubility in various chemicals, microscopic cross-sections may be employed to differentiate the new fibers.

Fiber	*Cross-sectional shape*
Dacron	smooth circle
Orlon	dog-bone, or dumb-bell
Dynel	horseshoe, or letter "C"
Acrilan	lima bean

CONCLUSION

I would like to conclude this informal talk with a quotation from a recent report by Mr Boulton in Bradford, England:

"With man-made fibers in the wool field, the dyer is now merely feeling his way. The assimilation of man-made fibers into the protein-fiber field is, in its way, a revolution. New dyeing methods must be accepted, and some readjustment of traditional practices will need to be made in many directions. Whilst both dyer and manufacturer are expected to accept these readjustments, the maker of fibers must do all that is possible to provide fibers in the form best suited to the manufacturer's needs, and the dyemaker, too, must recognize the full implication of the revolution. When man-made fibers first appeared, dyes suited to their properties quickly followed. Now that fiber blends and systems of blending are being put into previously unheard-of uses, we shall expect, where necessary, the same kind of response by way of new dyes to meet those cases". *(J Soc Dyers Colourists* (1951), p 415)

Research Committee—

(Concluded from Page P446)

ating wash fastness of hosiery. They state that conditions of the test are much more severe than the practice in washing hosiery either in commercial or home laundering. The Wash Fastness Committee, after considering the comments, expressed the opinion that AATCC merely sets up tests but does not decide where these tests are to be used or specified. It appears that our tests are becoming so popular that there is the natural tendency to specify progressively more stringent tests in order to up-grade the class of merchandise. This, however, is done by the textile trade and not by AATCC. This committee also considered a recent complaint that our No III Wash Test shows greater stain than the fabrics being tested developed in either commercial or home laundering. The committee recognizes the point of the statement but after thorough consideration of the fact that this test, which is over ten years old, has served satisfactorily in the textile trade over that long period, feels it should not be too quickly changed if an occasional anomaly turns up. The committee still feels that the test is useful in grading the quality of textile material. The Wash Fastness Committee is also collaborating with the staff at Lowell Textile Institute in outlining the necessary tests to correlate the results secured from the Accelerotor with those secured from our III-A Test. Tests of varying speed, time and temperature in the Accelerotor have been outlined.

Following this report there was considerable discussion of the word "vigorous", which appeared in the recent description of our III-A Test. This discussion, together with that held in conjunction with the report on Durable Finishes, convinced some of the members present that there is a need for a committee on definition.

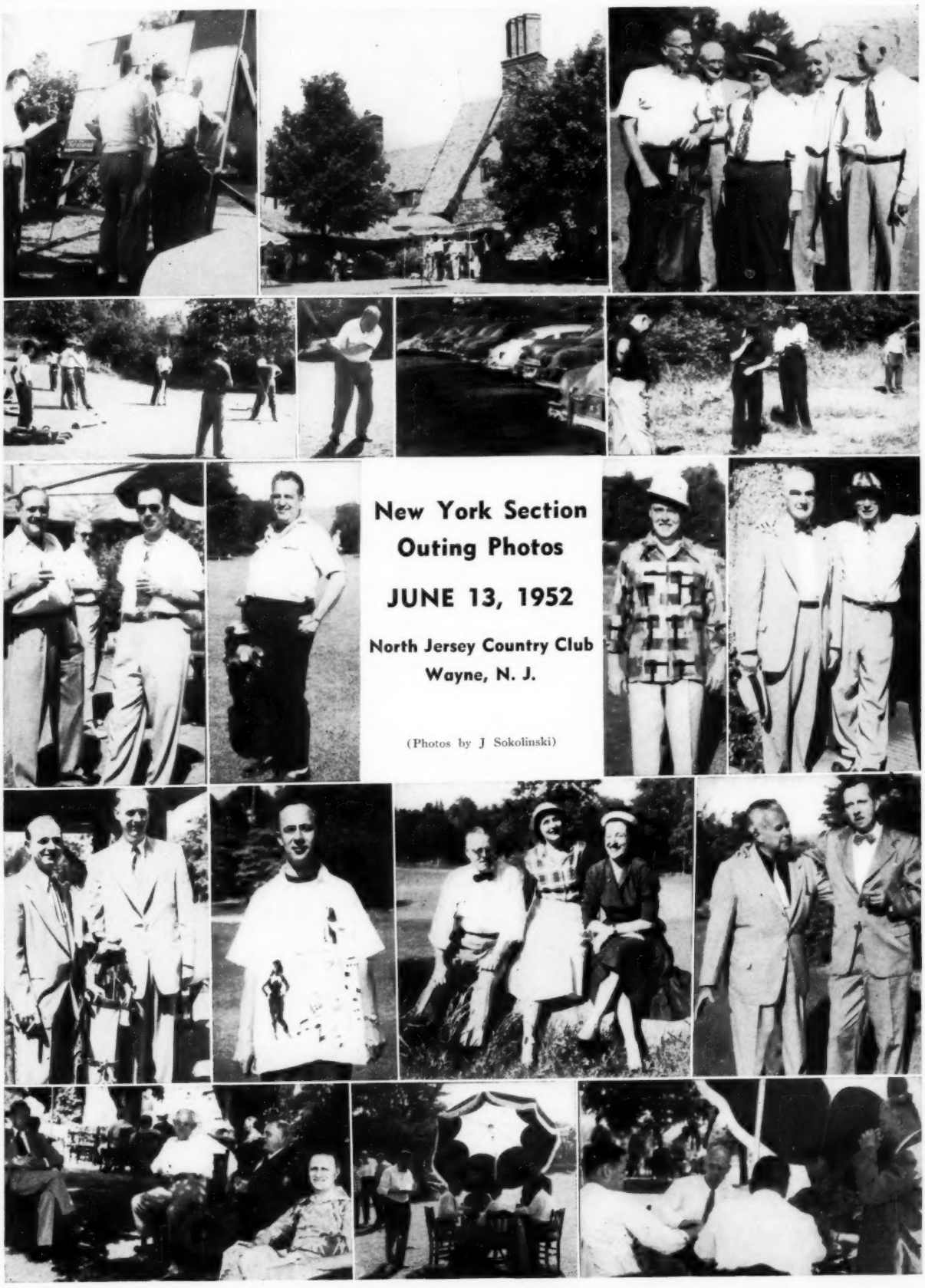
ATMOSPHERIC FADING——Mr Sylvester reported for the Chairman, Herbert Scull, who was absent. Interlaboratory tests have been coducted in five laboratories on the new unit for accelerated tests. Four laboratories showed good agreement; the fifth showed some wide variations. More checking is being done to reconcile this partial disagreement. The committee reviewed an article on this subject submitted for publication in the *Reporter.* After some deliberation the committee recommended that the article not be published. With reference to the effect of gas dryers on fast-dyed-cotton material, as submitted by the Home Economics Group at the Ohio State University, the committee reports that considerable work is now going on which in general is not at variance with the results reported from the Mid-West. The committee recommended to the Chairman that a subcommittee be appointed to specialize on this particular problem, which appears to be of importance.

There being no further business, adjournment followed at 3:45 pm.

Those present were:

L S Little, *Chairman*
H W Stiegler, *Research Director*
G H Schuler, *Secretary*

M J Babey
K H Barnard
J R Bonnar
W H Cady
H C Chapin
C W Dorn
C Z Draves
W C Durfee
P J Fynn
J M Gould
H E Hager
S L Hayes
W A Holst
G H Hotte
K A Howry
G D Jackson, Jr
R W Jacoby
P J Kennedy
J Kiene
E A Leonard
A R Macormac
W R Moorhouse
A D Nute
A L Peiker
C N Rabold
H A Rutherford
R B Smith
R H Souther
M Stapleton
J A Stevenson
C A Sylvester
F Tripp



New York Section Outing Photos

JUNE 13, 1952

North Jersey Country Club
Wayne, N. J.

(Photos by J Sokolinski)

Southeastern Section Summer Outing

June 6 and 7, 1952
Radium Springs, Ga

BEAUTIFUL prizes comprised the "keynote", the "platform" was fun for all, with "planks" of golf, bridge, bingo, dancing, swimming, and an all 'round good time. Old "Sol" won the nomination as the hardest worker by keeping the temperature in the nineties.

This was the setting for the third annual Summer Outing of the Southeastern Section where approximately one hundred and fifty members and ladies gathered at Radium Springs, Georgia to renew old acquaintances, celebrate the beginning of the vacation season, and continue molding the close relationships that exist between the members of this section.

Radium Springs is a resort located near Albany, Georgia, in the south central part of the state, and is well equipped for a summer outing. Its spring fed swimming pool maintains a constant temperature in the low seventies the year 'round, and the resort has many facilities for other sports. The eighteen hole golf course was well tested by practisers on Friday and tournament competitors on Saturday.

Following registration on Friday, June 6, a bingo party was held in the Radium Springs Casino ballroom. The prizes for this occasion were beautiful hosiery, thread, towels, and many other textile products donated by manufacturers in this section. This bingo party, as well as the cocktail party and dance Saturday, was under the direction of the Entertainment Chairman, K D Henry, of Textile Aniline and Chemical Co, Dublin, Ga. The cocktail party Saturday evening preceded a smorgasbord style dinner which is a specialty of the house, and a dance followed the dinner. Many door prizes were awarded at the cocktail party, dance, and the ladies' luncheon. These prizes included silver pieces, such as trays and serving pieces, an electric roaster, electric clock, table cigarette lighters, and many others.

R L Horney of Ciba Company, and wife Evelyn, took the ladies in tow with a program designed for them on Saturday. A luncheon at noon was followed by bridge and canasta. Top winners in these events were Mrs Joe W (Evelyn) Richardson of Russell Manufacturing Co, Alexander City, Alabama, and Mrs Howard (Patsy) Loveless of Crystal Springs Bleachery, Chicamauga, Georgia. Mrs Richardson won an electric mixer at bridge and Mrs Loveless won a silver serving piece at canasta. Joe Richardson had done a mighty job as finance chairman and probably considered his work well rewarded.

There was an innovation for the third annual golf tournament. A loving cup was provided as an extra prize to the mill representative with the lowest gross score. This cup is to be rotated to each winner until some one person has won it three times. For the coming year, T Howard McCamy of the Pepperell Manufacturing Co, Lindale, Georgia has the honor of keeping the cup, and he promises to be back in '53 to defend it. Low gross scorer Charlie Starnes of American Aniline Products, Inc, received a silver ice bucket. J M Ross of F H Ross and Co, Atlanta, the Golf Chairman, used the Calloway system of handicapping, and by this system S Y Stribling of Warwick Chemical Co took home a matched set of McGregor irons as holder of the low net score. Other prizes were a matched set of woods, an outdoor barbecue grill, electric toaster, golf balls, and others.

Royce C Smith of Swift Manufacturing Co, Columbus, Ga, as Men's Activities Chairman, conducted the horseshoe and bridge tournaments. Unfortunately a thunder shower was the winner in the horseshoe contest, but Cecil Ray of Pepperell Manufacturing Co, Pepperell, Alabama, landed a rod and reel as top man in bridge.

The climax of the weekend was an old fashioned South Georgia breakfast Sunday morning. Horace Caldwell, owner of Radium Springs, had invited the group to be his guests at this breakfast and nearly everyone was there to enjoy the tomato juice, fried ham, fried chicken, grits and gravy, hot biscuits, butter and jellies. It was served buffet style and seconds and thirds were encouraged.

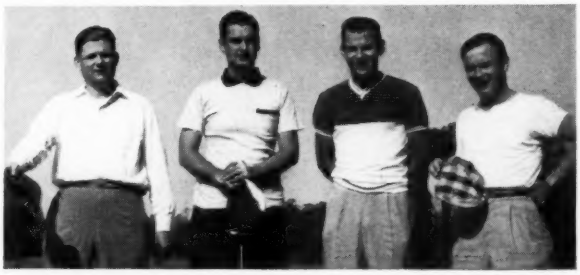
Credits are also due other committee chairmen for the parts they played. Howard McCamy was in charge of the prizes. Claude B Suttle of the American Cyanamid Co was the official photographer, and interesting photographs taken during the outing by him and by Jack Rose of Monsanto appear with this report. Dave Meriwether of Seydel-Wooley and Co, Atlanta, handled registration very capably, and George Dozier of Southern Dyestuff Co was assistant general chairman. F S Webster, Jr of F H Ross and Co, Atlanta, was the general chairman.

Jack Davis, Southeastern Section Chairman (Chemstrand), and Bette Davis

Warren Tiller (Tennessee Corp), G C Davis (Monsanto), Jane Hall, Jim Hall (F H Ross), Dick Jones (Southern States), Jackie Tiller, Peggy Davis, Henry Dozier and Betty Jones

Royce Smith (Swift) and Bill Haines (Hercules)

Bill Fayssoux (Royce), Bob Price (Pepperell), Riley Jones (Dundee) and Joe Federel (General Dyestuff)



Francis Webster (F H Ross), G C Davis (Monsanto), Dick Henry (Textile Aniline) and George Spicer (Textile Aniline)

Bill Haines (Hercules), Gertrude Haines, Katherine Griffin and Bill Griffin (Dexter)

Ken Makant (Clark Thread), Nesbit Johnston (Geigy), Walter Hope (Dixie Size), Louis Burkes (Muscogee), and Harold Berry (Cedartown Textiles)

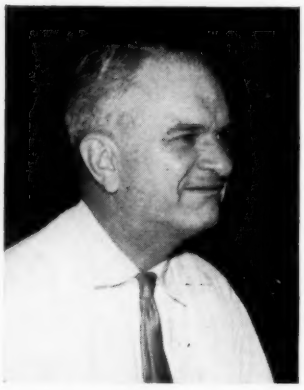
Ted Caldwell (Dow Chemical), Dick Jones (Southern States Chemical), Pete Peterson (Virginia Smelting) and Warren Tiller (Tennessee Corp)

Bill Kennedy, George Dozier (Southern Dyestuff), Dwight Turner (Arnold Hoffman) and Max Ferguson (Riegel Textile)

Ken Makant (Clark Thread), Gillespie Smith (Calco), Maxine Timmerman, Kempton Haynes (Rohm and Haas), Katherine McCamy, Louis Burkes (Muscogee), Phinizy Timmerman (Graniteville Mills), Bill Fayssoux (Royce) and Howard McCamy (Pepperell)

Joe Richardson (Russell), Virginia Webster and Jim Swiney (Fulton Bag)

(Additional Photos on Page P460)



Horace Caldwell, Owner of Radium Springs

Katherine Griffin, Gladys Jones, Thelma Ravenel, Katherine McCamy, Jane Meriwether, Eula Blackman and Annette Dozier

54 EXHIBITORS AT 1952 NATIONAL CONVENTION

THERE will be 54 exhibitors occupying 84 booths at the textile dyeing and finishing exhibit to be held in conjunction with the 1952 National AATCC Convention at the Hotel Statler, Boston, on November 6-7-8. The Convention is being held under the auspices of the Northern New England Section and the exhibit is managed by Campbell-Fairbanks Associates.

On display will be a wide range of dyestuffs, chemicals and auxiliaries, synthetic fibers and fabrics made from them, laboratory and process equipment. All exhibits will be on the mezzanine level of the hotel. This will be the largest exhibition of this type to be held in New England for many years and exhibition hours will be: November 6 and 7, 10 am to 10 pm; November 8, 9:30 am to 12 noon.

Attendance will be by convention registration. Student and plant groups with leader, however, are invited to attend on the two evenings and will not be required to register for the Convention or pay any fee. The leader will register for his entire group.

Following is a list of exhibitors:

Alco Oil & Chemical Corp
Alexander Smith Products
American Aniline Products, Inc
American Association of Textile Chemists and Colorists
American Bemberg Corp
American Dyestuff Reporter
American Optical Co
America's Textile Reporter
Anderson Machine Shop, Inc
Atlas Electric Devices Co
Bersworth Chemical Co
Calco Chemical Division, American Cyanamid Co
Catalin Corp of America
Celanese Corp of America
Ciba Company, Inc
The Cravenette Co
Custom Scientific Instruments, Inc
Dow Corning Corp
E F Drew & Co, Inc
E I du Pont de Nemours & Co
Emery Industries, Inc
Fairchild Publications
Gaston County Dyeing Machine Co
Geigy Company, Inc
General Dyestuff Corp
Hilton-Davis Chemical Co
E F Houghton & Co
Instrument Development Labs
Interchemical Corp
Kelco Company
Macbeth Corp
Monsanto Chemical Co
National Aniline Division, Allied Chemical & Dye Corp
National Milling & Chemical Co
National Starch Products, Inc
Nopco Chemical Co
North American Rayon Corp
Owens Corning Fiberglas Corp
Rayon and Synthetic Textiles
Rohm & Haas Co
Royce Chemical Co
Sandoz Chemical Works, Inc
Seydel-Woolley Co
Socony Vacuum Oil Co, Inc
Tennessee-Eastman Corp
Textile Age, Inc
Textile Bulletin
Textile Industries
Textile World
Union Carbide & Carbon Corp
Virginia-Carolina Chemical Co
Virginia Smelting Co
Wallerstein Company, Inc

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Report of Piedmont Section Outing

June 6 and 7, 1952
Ocean Forest Hotel, Myrtle Beach, S C

THE Piedmont Section held its summer outing at the Ocean Forest Hotel, Myrtle Beach, S C Friday and Saturday, June 6th and 7th, 1952.

A special luncheon and cocktail hour was enjoyed by the ladies on Saturday afternoon. A research committee meeting was held Saturday morning presided over by Dr H Y Jennings after which an officers' meeting was held presided over by Hobart Souther, Chairman of the Section. National President C Norris Rabold was guest speaker at the banquet. Announcement was made of the election of the following slate of officers for 1953.

Chairman—M M McCann. Vice-chairman—Henry A Rutherford. Secretary—Clarence Hooper. Treasurer—Herman J Jordan.

Sectional Committee—Moody A Burt, C O Stevenson, J W Ivey and Joe C Steele.

Councilors — Linton Reynolds, R E Rupp, Joseph Lindsay, Jr, and Hobart Souther.

Custodian—Arthur R Thompson.

Plans for the meeting were well handled by Wilford R Sargent. Approximately 250 were in attendance.

Respectfully submitted,
M M McCANN, *Secretary*

Vat Dye Tendering*

C H BAYLEY

Textile Research Laboratories, National Research Council, Ottawa, Canada.

THE problem of the tendering of cellulose under the influence of certain vat dyes is one of long standing. It is known that this tendering is intensified by exposure to light and especially by hypochlorite bleaching, as, for example, during laundering. Thus the damage is most often observed in printed fabrics, such as cotton or linen window drapes, and also in white cotton or viscose rayon tablecloths with printed designs.

In the case of the tablecloths, these, being predominantly white, normally receive a laundry bleaching treatment for the removal of stains which cannot be removed by soap and alkali alone.

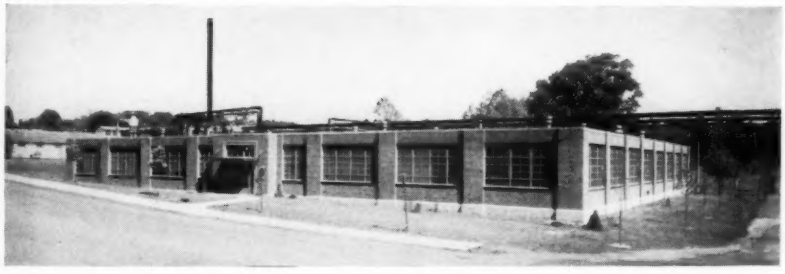
Cases of this type of damage, both in window drapes and in tablecloths, were quite common in the 1930's but had later dwindled to insignificant proportions. However, in the past year there has been a sharp increase in the number of cotton and rayon tablecloths with screen printed designs in vat colors on a white ground, which have been sent in to this laboratory by launderers and cleaners for explanation of the weakness and holes appearing in only part of the colored design after the cloth had been laundered a few times. In some instances the damage has occurred only in the green areas, in others it has occurred in the red, blue, or yellow.

Unfortunately, there is no way of knowing whether the fabrics involved are made in Canada or imported, but since the fact of unserviceability in consumer goods is frequently slow in reaching the manufacturer of the goods, we felt that the matter might well be brought to the attention of Canadian textile dyers and printers.

Most of the vat dyes which are liable to cause tendering of cellulose fabrics are known to the dyestuff manufacturers, and their advice should be sought in choosing suitable vat dyestuffs free from this defect for the printing of white tablecloths and drapery fabrics.

* Reprinted from *Canadian Textile J* 69, 59, January 4, 1952.

NEWS



An external view of Tennessee Eastman's recently completed service laboratory in Kingsport, Tennessee.

Problems relating to the use of Eastman acetate dyes in jig dyers are worked out in the textile section pilot plant.

Work is done on all types of dyeing problems in the laboratory of the textile section.

• Eastman Dedicates New Sales Service Lab

At an open house, held for the Northeast Tennessee Section of the American Chemical Society, the Tennessee Eastman Company recently dedicated its new sales service laboratory building, with over 100 chemists and engineers visiting the laboratories, examining the various equipment and discussing the work currently being carried on with Eastman's staff of chemists and technicians.

The laboratory builling itself reportedly covers some 16,840 square feet and is divided into four major sections. One section is devoted to problems relating to dyeing and finishing cellulose acetate and mixtures of acetate with other fibers. The activities of another include the development, application and testing of preservatives and antioxidants and their use in foods. The staff of the third section is primarily interested in assisting gasoline refiners. The fourth section houses the miscellaneous chemicals group. This section is concerned with the broader uses of Eastman Industrial Chemicals and includes separate laboratories for the study of problems relating to the use of these chemicals in such fields as protective coatings and plastics.

A physical testing laboratory and an analytical section are also provided for use by the other sections as needed.

The textile section includes a pilot plant in which commercial-sized machines

are located, including jigs, a cascade skein dyer, a padder, dyebecks, a vacuum extractor, a decater, a tenter frame, an open width boil-off tank and a slasher. With this equipment, it is stated that virtually all types of piece and yarn dyeing can be accomplished and any commercial problems relating to the use of Eastman acetate dyes and finishing agents can be studied and analyzed.

Other equipment in the textile section includes a perspirometer, a Fade-Ometer, a Launder-Ometer, pH meters, a gas fading chamber, crockmeters, a rain tester, and a Weather-Ometer.

Besides the commercial-sized machines in the pilot plant, the textile laboratory is also equipped with miniatures of plant-size dyeing equipment. The miniature machines include a padder, a jig, a raw stock dyeing machine, a top dyeing machine, a package dyeing machine, a print machine, a steamer and screen printing equipment.

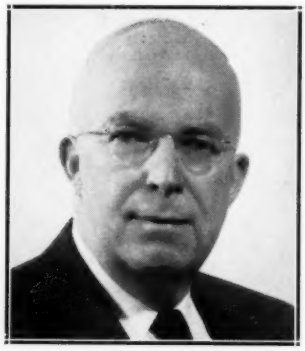
• Large New Synchro Plant

Beckman Instruments, Inc, South Pasadena 153, Calif, manufacturers of an extensive line of scientific instruments, has announced the opening of a large new plant devoted exclusively to the manufacture of synchros and associated components—bringing the number of plants in the Beckman operations to a total of fifteen.

The new plant, just completed and specially-designed to house synchro operations, is reported to be entirely air-conditioned and to be equipped with special electrostatic dust filters.

Beckman Instruments is currently in production on a number of Synchro types including Army Types II and XV, Repeater and Transformer Units. Inquiries are invited by Beckman on components, as well as Servo Systems as applied to automatic process control.

Paul B Slawter, Jr



Donald M Martin

• Sterling Advertising Adds Industrial Division

The formation of an Industrial Division to serve accounts outside the fashion and soft goods fields has been announced by Saul M Broun, board chairman of Sterling Advertising Agency, 535 Fifth Avenue, New York.

Heading up Sterling's Industrial Division are Donald M Martin, formerly advertising manager of General Dyestuff Corporation, selling agents for General Aniline & Film Corporation and Paul B Slawter, Jr, formerly vice president, The House of J Hayden Twiss, Advertising, New York.

Mr Martin has had extensive advertising and merchandising experience in the textile dyestuff and general chemical fields. Since 1922 he has been identified with advertising, marketing and sales promotion in the chemical industry specializing in dyestuffs and textile finishing processes.

Mr Slawter is a prominent industrial advertising executive and chemical engineer, holding many offices in leading chemical societies and organizations. He lectures on chemical advertising and publicity at Columbia University and the Polytechnic Institute of Brooklyn and is the author of the section on industrial advertising in the forthcoming book "The Chemical Business Handbook".

As a result of the inauguration of its Industrial Advertising Division, Sterling has been retained by a score of industrial advertisers among whom are the following: National Distillers Chemical Co, Division of National Distillers Products Corporation, Ashtabula, Ohio; The Edwal Laboratories, Ringwood, Illinois; Berkshire Chemicals, Inc, New York, N Y; Glyco Products Co, Inc, Brooklyn, N Y, and Natrium, W Va; Croll-Reynolds Co, Inc, New York, N Y; Chemical Mfg Co, Inc, New York, N Y; A Gross & Co, New York, N Y.

Sterling during its 38 years of operation has confined its accounts largely to fashion merchandise, textiles and products for women. This new division now makes its merchandising and marketing experience available to other industries.

• Ceremonies Mark Start of Latest Solvay Plant

Commencement of construction of the Perkins Plant of The Solvay Process Division, Allied Chemical & Dye Corporation, was formally marked on June 26th by a flag-raising ceremony at Moundsville, W Va. The plant will manufacture chlorine and caustic soda. Named in honor of R H Perkins, a retired vice-president of Solvay, the $15,000,000 plant is the Solvay Division's first operation in West Virginia.

Attending the luncheon and ceremony were some 150 community and Solvay officials and guests from the Ohio Valley area. Principal speaker of the day was A B Chadwick, president of Solvay, who reviewed the development of the Company and its place in the U S industrial scene.

Carlton Bates, Solvay vice president, welcomed the guests and introduced Solvay officials including: R H Perkins; H F Merritt, vice president; H R Margetts, director of operations; C P Hackett, assistant director of development; I H Munro, chief engineer; R C Baxter, project engineer, and H E Rowlands, Jr, director of public relations. Other representatives of Allied Chemical & Dye Corporation were D G Rogers, president, and F J Krueger, engineering manager of Allied's National Aniline Division.

Also introduced was Robert M Rownd, president of the Ohio Valley Industrial Corporation and one of the area officials most instrumental in helping Solvay locate at Moundsville. Selection of the 400-acre Moundsville site was reported to be influenced by the presence of adequate salt deposits, electrical power and water, good transportation facilities, and the growing market demands of Southern industry for chlorine and caustic soda.

Mr Perkins spoke briefly at the flagpole site and raised the American and Solvay flags. The Solvay flag has a blue background emblazoned with a white anchor on which is superimposed the letter "S".

It was announced that R C Skinner will be the resident manager at Moundsville when the plant is completed. Formerly, Mr Skinner was supervisor of the Huntsville, Ala, government-owned chlorine plant, which Solvay operated under lease for five years. Currently Mr Skinner is supervising preliminary construction work at Moundsville.

The contract covering rough grading road building and railroad track for the new plant has been awarded to the Seabright Construction Company of Wheeling, and this work is now under way. It is expected that actual field construction work will begin within the next couple of months. When completed the new plant will reportedly employ about 125.

• Underground City Produces Essential Salt

Thirty miles south of Rochester and sixty miles east of Buffalo, at Retsof, N Y lies a salt mine as big as lower New York, more than 1,800 acres. This Retsof Mine of the International Salt Company, Inc, Scranton, Pa, is said to be the largest in the western world, complete with an underground office and machine shop, as well as narrow gauge railway tracks leading to the working faces.

Much of the heavy mechanical equipment required to run the mine had to be taken apart on the surface, lowered into the mine through narrow shafts, and then reassembled underground. In the spacious and well-lighted machine and assembly shop men maintain the 30 electric locomotives, hundreds of mine cars, and the undercutting and loading machines used in the mining operation.

The first mining step is the cutting of a horizontal slot in the salt vein at floor level, 10 feet deep and 56 feet across, and vertical slots running from top to bottom at the sides of the vein (figures 1 and 2). This undercutting and side shearing allow the explosive to expand with minimum resistance and increase the safety and the efficiency of the blasting operation.

Before blasting, operators drill some 55 powder holes 10 feet deep into the salt (figure 3) and fill them with dynamite (figure 4). Electric "delay" detonators are wired together in series so that all blasts go off at the same time. For safety's sake, blasting is done only after all men, except the powder men, have left the mine.

Following this, the rock salt is loaded into mine cars, then hauled by electric locomotives down a 40-foot right of way of the main line railroad track, 50 or more cars at a time, to the foot of the mine shaft (figure 5). One at a time the cars are turned upside down there, and the salt pours down a chute to a giant crusher, where large lumps are broken up. From there it is lifted to the top of the breaker house above ground, shooting up 1,292 feet in 65 seconds, and there, in the breaker house, it is crushed, screened, and graded to all required commercial sizes.

About half the salt produced in the United States is rock salt, mined in this manner, it is estimated. The other half is evaporated salt produced by evaporating salt brine. International Salt reportedly produces 69 different types of salt.

One of the three great rock salt mines of the International Salt Company, Inc, (the other two are at Detroit, Michigan and Avery Island, Louisiana) the Retsof Mine was developed by a company organized in 1884 by William Foster, Jr. His name, spelled backwards, became the name of the mine.

In addition to its modern production and merchandising organizations, the company maintains an Industrial Division consisting of a Research, Development, and Field Engineering Staff, the services of which are available for the solution of technical problems arising from the transportation, storage, and use of salt in all types of industry.

Figure 1
First Mining Step — Undercutting

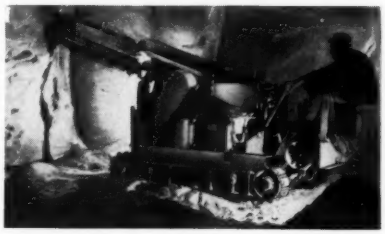


Figure 2
Side Cuts

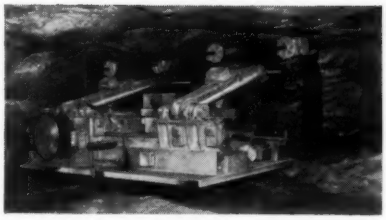


Figure 3
Drilling Powder Holes

Figure 4
Powder Man Taps Dynamite Into Powder Holes

Figure 5
"Main Line" Hauls Loaded Cars

• Heyden Moves Philadelphia Branch Sales Office

The Philadelphia branch sales office of Heyden Chemical Corporation, located for the past six years at 1700 Walnut Street, was moved to new quarters in the Lincoln-Liberty Building at the corner of Broad and Chestnut Streets, Philadelphia 7, Pennsylvania, on July 8th. The new phone number is Locust 4-6075.

• Ahco Dyestuff Advertising Wins National Acclaim

In the recent annual national creative awards contest held at Skytop, Pa, by the National Advertising Agency Network—a group of 31 associated advertising agencies located in this country and Canada—Arnold, Hoffman & Co, Inc, of Providence R I, was given an Award of Merit for their current four-color dyestuff insert series appearing in the textile tradepress.

The announcement of the award was made by Oakleigh R French, managing director of the National Advertising Agency Network, who noted that more than 350 entries were made in the contest, which was reportedly judged by 29 nationally-recognized advertising executives.

Arnold, Hoffman's agency, the George T Metcalf Co of Providence, a member of the National Advertising Agency Network, had entered the insert series featuring Ahcovat Dyes in the business paper—product advertising division of the creative awards contest.

• PTI Annual Meeting

At the Annual Meeting of the Philadephia Textile Institute on June 17th, 1952, the following trustees were elected for three year terms: Henry H Benedict, president, Henry H Benedict Company; Millard D Brown, president, Continental Mills, Inc; Benjamin Gibbs, treasurer, Gibbs Underwear Company; Russell C Osborne, president, R C Osborne & Company; Fred C Scholler, president, Scholler Brothers, Inc.

Officers elected for the coming year were: *Chairman*—Theodore B Hayward, Swift and Company; *President*—Rinaldo A Lukens, vice president, Continental Mills, Inc; *First Vice President*—Fred C Scholler; *Second Vice President*—Benjamin Gibbs and *Secretary-Treasurer* — Julius Zieget.

Other Trustees serving unexpired terms are: C Scott Althouse, Morris R Brownell, Jr, Frederick Garman, Theodore B Hayward, W Lyle Holmes, Jr, Everett L Kent, Rinaldo A Lukens, Lindsey H Mason, F Everett Nutter, Edward H Rakestraw, H Wickliffe Rose, and Robert A Smith.

(L to r): Donald Mulvey, Louis F Haage, and Eugene Suozzo demonstrate how fabric styles are developed on the hand loom.

• Textile Students Pioneer On TV

A series of textile demonstrations designed to interest and appeal to housewives was recently completed by senior students of the Textile Technology Department of the Utica Technical Institute as part of the "Coffee Time With Betty and Dave" show, which is telecast over WKTV, Utica, N Y.

In the demonstrations it was shown how fabrics are tested for flammability, how heat affects rayon and acetate fabrics, and how soaps and detergents act in laundering. The fastness of vat dyes, uses of the new synthetic fibers, the care of carpets, and how fabric styles are developed and woven were also subjects for demonstration.

This feature was presented nearly every week during the late winter and spring months, attracting favorable comments as the series progressed. Students performed the demonstrations and explained them in nontechnical language. In addition, the laboratory facilities and services available at Utica Technical Institute were explained and the opportunities for young men and women to prepare for technical careers in the textile field stressed.

The following participated in the program under the direction of Louis F Haage, instructor of textile technology: Henry Cieply, Lino DeGasperis, John Gargash, David Griffith, Herbert Kagi, Donald Mulvey, John Patterson, Eugene Suozzo, and Norman Thompson. All are AATCC members.

• Over 470 Attend TI Conference

The growing importance of the Textile Institute's annual conference as a gathering of members and visitors from all parts of the British Isles and overseas was shown by an attendance of over 470 at this year's conference on Fiber Blends at Edinburgh, Scotland.

The total attendance was some 150 more than at last year's conference at Brighton, and close to double the attendance at earlier conferences. It included the largest number (45) of visitors from overseas who have yet attended an Institute conference. 13 visitors were from the United States; others were from Canada, South Africa, India, Norway, Sweden, Switzerland, Holland, Belgium, France, Italy and Syria.

Ten students were again the guests of the Institute, and several others were present including students of Greek, Turkish, Burmese, Indian, Pakistani and other nationalities who are studying in Britain.

The Textile Institute's annual conference in 1953 is to be held at Llandudno, North Wales during Whit Week, May 25-30.

As this is the week before the Coronation, the Institute is giving as much notice as possible of its plans, to enable members overseas to make early arrangements regarding travel.

The purpose of the conference will be to consider and discuss the design and testing, for special purposes, of fibers, yarns and fabrics.

• New Bakelite Movie

"Flight to the Future", a new 37-minute motion picture, has been produced in color and sound by the Bakelite Company, a Division of Union Carbide and Carbon Corporation.

In the film a professional cast of Hollywood actors present a story that reveals how deeply plastics have entered into our daily living both in industry and the home. More than a thousand modern uses of plastics are portrayed.

James W Lederer

• Richmond Opens New Southern Office

Richmond Oil, Soap & Chemical Co, Inc, Philadelphia, Pa, have opened a new southern office at Chattanooga, Tenn, in the Volunteer Building.

James W Lederer will be in charge of the new office and will be responsible for Tennessee, Kentucky, Mississippi, Georgia and Alabama. Henry M Ruben, who formerly covered part of this territory, will concentrate in the Carolinas.

It was announced that George C Kantner has been promoted to chief chemist of the company.

• Macbeth Named Sales Representative

The Macbeth Sales Corporation, subsidiary of the Macbeth Corporation, Newburgh, N Y has been appointed sales representative in the United States and Canada for the Nickerson-Hunter Cotton Colorimeter. This development makes available from one organization two standard cotton classing aids—the Macbeth Cotton Examolite and the Nickerson-Hunter Cotton Colorimeter.

• Atlas West Coast Office

The opening of a new West Coast office to provide additional service for users of its industrial chemical products has been announced by the Atlas Powder Company, Wilmington, Del.

George J King, director of sales of the company's Industrial Chemicals Department, has stated that the new office (in San Francisco, Calif) will make Atlas technical service more readily available to industries in northern California, Washington and Oregon.

Henry C S Swab has been assigned as technical sales representative in the office, which will be located in the Crocker First National Bank Building, 1 Montgomery Street. Mr Swab has been a technical sales representative attached to the firm's chemical sales office in New York for the past four years.

• ASA Approves 51 Performance Standards

The American Standards Association has approved 51 performance standards for rayon, acetate and mixed fabrics in various end-uses, according to an announcement made on June 25th by Admiral George F Hussey, Jr, managing director of ASA, who declared that the new standards have been developed by the work of 30 national organizations participating in the rayon-acetate project.

The standards provide tests and specifications for laundering, washability, shrinkage, colorfastness, flammability, and other points. Each of the 51 standards covers a provision for strength of fabric. The tests for shrinkage in laundering reportedly specify 2.5 percent as allowable shrinkage. Colorfastness standards apply to laundering, cleaning, perspiration, pressing, sunlight, and atmospheric fading. Special provisions are made for colorfastness to salt, pool, and fresh water for bathing suits. A basis for crease resistance claims is provided and test methods for flammability of fabrics are also included.

In all, thirty-one different test methods are provided to check the performance of the various fabrics. They come from such sources as the American Society for Testing Materials and the American Association of Textile Chemists and Colorists; and from Commercial Standards and test methods that have been established by individual concerns, such as the Tebelized or Monsanto Method for crease resistance, permanence of finish to dry cleaning and laundering by the American Viscose Corporation, and yarn shifting (distortion) woven fabrics by U S Testing Company.

Suitable certification and labeling procedures will reportedly be developed to inform consumers on what to expect and how to wash or clean the fabrics.

By definition in the new standards, the term *rayon* and *acetate* includes all fibers deriving from a cellulose base regardless of manufacturing process. The terms *rayon, acetate* and *mixed fabrics* refer to fabrics containing more than 50 percent of rayon or acetate fibers. The balance of the fibers may be nylon, Dacron, cotton, wool or any of the new fibers coming into use.

The fabrics covered include those for women's and girls' wearing apparel of 24 end-uses; for men's and boys' wearing apparel in 16 end-uses, such as sports wear, suiting, lining and bathing suits. Home furnishings, such as window curtains, draperies, slip covers and blankets, are covered by eleven standards. Woven fabrics and knit fabrics are specified separately.

The National Retail Dry Goods Association, which took the leadership in the rayon project, emphasized from the beginning that the consumer is primarily interested in the serviceability of the fabric rather than in the fiber content. This principle lies at the foundation of the announced American standards for rayon, acetate and mixed fabrics.

The NRDGA initiated the rayon project in the autumn of 1949 through the facilities of the American Standards Association. Chairman of ASA Sectional Committee L22, in charge of the project, is J D Runkle, vice president and general manager, Crowley, Milner and Co, Detroit.

One of the problems which the American Standards Association reportedly faced in considering approval of these standards was the determination of the existence of a true national acceptance. Following the completion of the technical work in the subcommittee stage all producing groups which had participated withdrew to an observer status on the grounds that the producers had insufficient interest i the standards at that time. Under ASA procedure all groups have the inherent right to participate, but they must exercise their own judgment as to the extent of that participation. The ASA, however, in approving the standards gave particular attention, through a special study committee, to the position of the producers.

A plan for the informative labeling and certification of rayon, acetate and mixed fabrics, has been worked out and approved by ASA Sectional Committee L22. Though not an American Standard, its recommendations are intended to serve as a guide to organizations wishing to administer it.

Under the labelling plan, each fabric or garment is labelled to indicate how it should be laundered or cleaned.

"Washable" means that an article may be washed at home or in a commercial laundry with any good soap or detergent in a water not over 160 degrees F.

"Hand washable" means that the article may be washed by hand or machine at home or in a commercial laundry with suds of a mild (neutral) soap or detergent. It is particularly emphasized that water not more than 100 degrees F must be used.

"Dry cleanable" means that an article should not be washed but only dry cleaned.

The ASA Sectional Committee on Rayon Fabrics has stated that the success of such a certification plan hinges on the integrity, impartiality and thoroughness of the certifying agency. The sectional committee in charge of the labeling and certification project has created a subcommittee which will be in charge of the preliminary introductions of the standards to industry, commerce and consumers.

• Instrument Distributors Continue to Urge Application of DO-X1 Ratings

Reports appear to indicate that the nation's leading distributors of scientific instruments and laboratory apparatus continue to urge their customers to apply DO-X1 ratings to all orders in spite of the fact that most distributors feel controls no longer serve a useful purpose.

These facts were determined by Kenneth Andersen, executive vice president of the Scientific Apparatus Makers Association, in a sampling of this Section of the Association's membership to determine the effects of amendments to NPA Order M-71, which established the DO-X1 priority for laboratories.

Mr Andersen reportedly found that distributors are sending out form letters requesting priorities on all nonrated orders, are maintaining a complete priorities file, and are passing these priorities on to manufacturers in a purely routine manner.

Distributors contacted are said to have generally expressed little interest in amendments to M-71, dated June 19, which:

Establish a sort of "super priority", X-1-B-5, for defense contract laboratories;

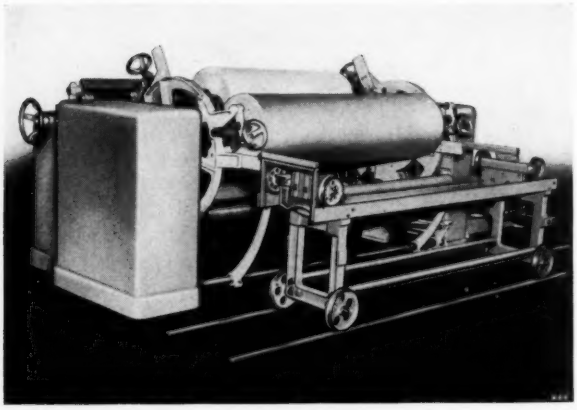
Which raise the present $3,000 a quarter self-certification limit for uncontrolled materials and supplies to $10,000 effective July 1, 1952, for nondefense contract laboratories, and removed the limit altogether for defense contract laboratories, and

Which raise most controlled materials quarterly self-certification limits from 4 to 16 times (Only nickel bearing stainless steel was not increased. Limit on this material remains at 300 pounds).

Mr Andersen is said to have found that the B-5 suffix which defense contract laboratories may now add to X-1 priorities to identify A, B, C, and E orders probably will mean little, for the military departments and the Atomic Energy Commission already have high priority ratings that they can apply. All companies contacted appear to agree that priorities for direct military orders never have been a problem.

Raising or removing the limits on controlled and uncontrolled materials may help on a few items, company officials feel. However, they point out that difficulties during recent months have been due not to lack of priorities, but to the fact that certain materials have simply not been available.

NEW PRODUCTS AND DEVELOPMENTS



Gessner Automatic Turret Winder

• New Gessner Turret Winder

The David Gessner Company, Worcester, Mass, announces the development of a new automatic turret winder for use with the Gessner Full Decating Machine. Several features of this new turret winder insure an increased production in full decating, it is claimed.

The hoist to lift the perforated rolls wound with cloth and apron has been eliminated. In the new unit the rolls are transferred from the winder to the carriage, which carries them to the decating kettle by means of a revolving turret. This turret is push-button-controlled and is locked into place at the end of each cycle.

Automatic guiding of the apron is said to do away with any loss of time for straightening, a feature which keeps the apron free from wrinkles. Tension on the apron is maintained by the use of a friction roll.

The rolls of cloth and apron are cooled in the winder in order to conserve floor space that a cooling frame would otherwise require.

Designed to give a production of 10 to 16 pieces per hour with one operator, this new turret winder, coupled with the Gessner Automatic Controls on the vacuum kettle itself, comprises a new team in the process of full decating.

• Depcosol Perm-An

De Paul Chemical Company, Long Island City 1, N Y, is reputedly the first to announce the development of a permanent anionic softener with the properties of the cationics without its disadvantages (primarily, the adverse effect on dye shades).

The product, known as Depcosol Perm-An, will give a hand and wash fastness usually associated with the cationic softeners, the manufacturer states.

• Hartex Defoamer "S"

The Hart Products Corp, 1440 Broadway, New York, N Y, has introduced Hartex Defoamer S, a new development in antifoaming agents, which reportedly eliminates foam with exceptional efficiency. This antifoaming agent, available as viscous, cream-colored emulsion, is said to offer the following advantages in handling and use:

1. Extremely effective antifoaming action.
2. Wide application.
3. No loss of efficiency due to evaporation.
4. No refoaming.
5. Economy—low cost per job done.
6. Effective over the entire pH range.
7. Ease of handling.

In such operations as roller printing, dyeing, scouring, kier boiling, heavy soaping, package yarn dyeing, and in defoaming weighter solutions for knit goods, very small quantities of Hartex Defoamer S are claimed to be remarkably effective in minimizing or eliminating foam completely.

NAMES IN THE NEWS

DR CARY R WAGNER, of General Aniline & Film Corporation, was elected chairman of the Executive Committee of the Company's Board of Directors at the June meeting.

At the same time, Dr Wagner resigned his staff post as senior vice president of General Aniline effective June 10th to enable him to give more time to his chemical consulting practice and other interests.

A leading figure in the chemical industry for thirty years, Dr Wagner became a director of General Aniline in 1947.

Most recently, the appointment of four research managers at GAF's Central Research Laboratory at Easton, Pa, has been announced by Dr J W Lang, GAF Director of Research.

The new Research Managers and their fields of research responsibility are: DR D I RANDALL, vat dyes; DR W W WILLIAMS, azo dyes; DR C F JELINEK, surface active agents; and DR J M WILKINSON, new fields including acetylene products.

Dr Lang has stated that all research at the Central Research Laboratory will be conducted by these four groups and will be supported by the Analytical Services group working under the direction of DR L T HALLETT.

No important change in the scope or basic concept of the research program at the Central Research Laboratory is contemplated, it is announced. The new assignment of responsibilities reportedly represents a simplification of the Laboratory's function.

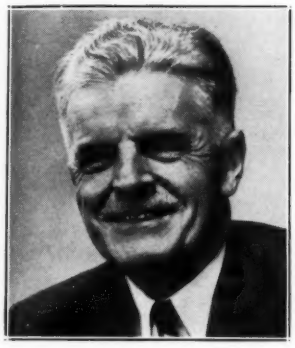
JOHN J SPEED has been named personnel relations manager for General Dyestuff Corporation. Mr Speed, who will be headquartered at the company's home offices in New York City, was formerly personnel relations manager for the New York City offices of General Aniline & Film Corporation. (GAF dyes and chemicals are sold by General Dyestuff).

In his new position, Mr Speed will direct the administration of the personnel relations program of the entire company including branch and sales offices throughout the country.

H C Little

C F Bonnet

Donald A Barnes



R E Sumner

A H Gower

NOTABLE personnel moves by the American Cyanamid Company within the past month include the following:

H C LITTLE, director of employee relations, was named assistant to the president. He remains in charge of employee relations.

R E SUMNER, former manager of the Textile Resin Department, Calco Chemical Division, is now general manager of the Industrial Chemicals Division. C F BONNET, formerly production manager, has moved up to the post of assistant general manager in the Industrial Chemicals Division.

Also in the Industrial Chemicals Division, DR A H GOWER has been appointed assistant district manager of the Philadelphia and Baltimore Districts. He was formerly a technical salesman for Industrial at the Boston office.

L R FORREST, who formerly served with Industrial's New York Production Department, has been transferred to the Warners Plant, Linden, N J, where he will serve as staff assistant to the works manager. His duties will include the coordination of plant and chemical engineering problems.

The Market Research Section of the New Product Development Department has added ELWOOD I CLAPP, JR. Mr Clapp was transferred from the Chemical Engineering Division of the Company's Stamford Research Laboratories.

JOHN F McGREEVY has joined the Central Engineering Department where he has been assigned to a study of the program for X-51, Cyanamid's new acrylic fiber. He will be special assistant to the chief engineer. He was with Calco in a senior engineering capacity prior to this latest appointment.

C B CLARK, director of the Patent Department at the Stamford Research Labs, retired on June 30th, following 23 years of service with the Company. Prior to that time he was associated with the General Chemical Company.

A Canadian subsidiary, North American Cyanamid Limited, has appointed ROBERT JOHNSTON as technical service representative of their Paper Chemicals Department. He will service Eastern Canada from the Montreal office.

R W BRINER has been appointed by the Chemical Sales Division of Firestone Plastics Co, Pottstown, Pa, as sales representative for the New England territory. Mr Briner will make his headquarters at the new Chemical Sales offices at Main and Ely Streets, Hartford, Conn.

Prior to joining Firestone, Mr Briner was chief chemist of the Pantasote Co, Passaic, N J, and before that he had been chemist at the Zapon Division, Atlas Powder Co, Stamford, Conn. In his new position he will handle the sale of Firestone resins.

DONALD A BARNES, associated with the Southern textile industry the past 18 years, has joined the A E Staley Manufacturing Co, Decatur, Ill, as a technical sales representative. The Staley Company markets a complete line of textile starches and sizes.

Mr Barnes has been a technical sales representative of Arnold, Hoffman & Co, Inc, the past five years. He will reportedly make his headquarters at Charlotte, N C, but will operate under the supervision of the Staley Company corn division sales office at Atlanta.

VINCE TRAYNELLIS of South Hackensack, N J, a graduate of Rutgers University, is the initial recipient of a pre-doctoral study fellowship in organic chemistry that has been established by the Wyandotte Chemicals Corporation at Wayne University.

Mr Traynellis will work under the direction of Calvin Stevens, associate professor of organic chemistry at Wayne, on the structure of compounds formed from phenacyl bromide-base reactions and also on gem dihalides produced by the Hofmann Reaction.

The fellowship, which amounts to $1200 plus tuition and fees will be awarded annually by the personnel committee of the department of chemistry at Wayne University.

APPOINTMENT of W E BLAIR to the post of executive assistant, reporting to the president, and D H ROSS to the position of director of product development for the Solvay Process Division, Allied Chemical & Dye Corporation, was announced on June 30th by A B Chadwick, President of the Solvay Division. Both appointments became effective July 1st.

Mr Blair started with Solvay at its Boston sales office in 1919. Mr Ross was first employed by Solvay in 1934. He became assistant manager of the product development department in 1942 and now succeeds Mr Blair as director of that department.

T A Langstroth

W Hersey Howard

R M Young

OFFICIALS of The Hilton-Davis Company, a division of Sterling Drug, Inc, Cincinnati, O, have announced the following personnel developments:

THEODORE A LANGSTROTH has been appointed associate director of research of the Pigments Division, where he heads laboratory research activities, including the pilot plant laboratory, in the production of dry and flushed colors. He is also slated to help coordinate activities between the research and technical sales staffs. Now in his 22nd year in the field, Mr Langstroth was reputedly one of the first to work with flushed colors for industrial uses. Prior to coming to Hilton-Davis, he was technical director at Aridye Textile Colors Division of the Interchemical Corp.

W HERSEY HOWARD will handle sales of Hilton-Davis dyestuffs to the textile industry in the Mid-West, as a new member of the firm's technical sales staff. In addition, he will coordinate technical sales activities of Hilton-Davis Sales Co, Boston, Mass, and Blackman-Uhler, Spartanburg, S C, Southern sales representatives of the Cincinnati firm. Mr Howard was associated with Ciba Co, Inc from 1938 until assuming his present position.

T R Devitt

TIMOTHY R DEVITT joins the technical sales and service staff of Hilton-Davis Sales Company to direct activities of the new textile service laboratory now nearing completion in Boston. Prior to assuming his present post, Mr Devitt was a member of the technical sales staff at Althouse Chemical Co. He had previously been associated successively with Arkwright Finishing Co, Lincoln Bleachery & Dye Works and Collins & Aikman Co.

R M YOUNG has been appointed a member of the sales staff of Ultra Chemical Works, Inc, for whom he will cover the Greater New York territory.

Previously Mr Young was vice-president in charge of sales for the Plastic Weave Mills, textile weavers and converters.

TEN technical leaders in the field of engineering materials—men who have rendered outstanding service to the American Society for Testing Materials, particularly in its technical committee work—were honored during the ASTM 50th Anniversary Meeting in New York City the week of June 23 when they received Awards of Merit.

The following men received the awards:

W P DAVEY, Dept of Physics, Pennsylvania State College, State College, Pa;

G H HARNDEN, specifications engineer, Standards Div, Executive Dept, General Electric Co, Schenectady, N Y;

J C HARRIS, assistant director, Central Research Dept, Monsanto Chemical Co, Dayton, Ohio;

J J KANTER, directing engineer, Engineering Labs, Crane Co, Chicago, Ill;

H S MATTIMORE, engineering consultant, Colonial Park, Pa;

D E PARSONS, chief, Building Technology Div, National Bureau of Standards, Washington, D C;

H M ROBINSON, service engineer, Underwriters' Laboratories, Inc, Chicago, Ill;

J D SULLIVAN, assistant director, Battelle Memorial Institute, Columbus, Ohio;

RAY THOMAS, staff engineer, Carbide and Carbon Chemical Div, Union Carbide and Carbon Corp, S Charleston, W Va; and

F D TUEMMLER, head, Analytical Standardization Dept, Shell Development Co, Emeryville, Calif.

MIGUEL ROMERO, now studying in Harvard University under a fellowship grant by the Camille and Henry Dreyfus Foundation, Inc, has received an extension of his fellowship for an additional year of study as a result of his extraordinary performance. This will enable him to get his PhD in advanced textile chemistry, it is learned.

Mr Romero, 27 years old, is a staff member of the Chemical Institute at the National University of Mexico. He was selected for the fellowship by Dr Louis F Fieser of Harvard University.

The Camille and Henry Dreyfus Foundation was founded by Camille Dreyfus, Chairman of the Board of Celanese Corporation of America.

WESTVACO Chemical Division, Food Machinery & Chemical Corp, has announced the appointments of P F TINSLEY as director of district sales and W O HOLLEMAN as Eastern District sales manager.

Mr Tinsley, with Westvaco since 1939, was formerly district sales manager in the South. Previously, he had served successively as district sales manager, with headquarters in Cincinnati, and Eastern District sales manager, with headquarters in New York.

Mr Holleman joined Westvaco in 1948 as New England representative. Since 1951 he has been assistant district manager. In filling the post vacated by Mr Tinsley, Mr Holleman retains headquarters in New York.

M J McCarthy

MAURICE J McCARTHY joined Hardesty & Co on July 1 as director of sales, in which position he works in close cooperation with W W FISCHER, recently-named general manager.

Mr McCarthy has spent most of his business career in the fat and oil industry, having been associated for the past 20 years with A Gross & Company, as executive vice-president and treasurer. He joins Hardesty & Co as their expanded fatty acid plant in Philadelphia gets into full production.

HERCULES Powder Company announced on July 1st the appointment of WERNER C BROWN as an assistant director of sales for its Cellulose Products Department. Mr Brown had been supervisor of CMC sales.

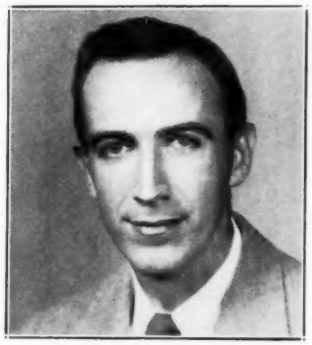
J T SKELLY, JR, remains as assistant director of sales for the department, and will be in charge of sales of nitrocellulose, chlorinated products, as well as liaison with branch offices.

Mr Brown will reportedly head up the sales of cellulose acetate, ethyl cellulose, plastic molding powders, as well as CMC (also known as cellulose gum).

At the same time, Hercules announced that A R OLSEN will become manager of CMC sales, succeeding Mr Brown, while J B MARTIN will replace Mr Olsen as manager of molding powder sales in the Cellulose Products Department.

THE appointment of WILLIAM F KENNADY as representative in the Georgia-Tennessee area for Arnold, Hoffman & Co, Incorporated, Providence, R I, has been announced by W Chester Cobb, vice president in charge of sales. For the past year, Mr Kennady has been in charge of the Charlotte sales service laboratory of Arnold, Hoffman Company and prior to that was with National Aniline Company in their Charlotte laboratory for six years.

Mr Kennady will make his home in Atlanta and work out of the Company's Charlotte office.



W F Kennady

L C Holt

LAURENCE C HOLT has been named Acrilan manufacturing superintendent, transferring to The Chemstrand Corporation's new acrylic textile fiber plant in Decatur, Alabama, from Marcus Hook, Pa, where he supervised operation of Chemstrand's pilot plant.

DR DAVID W CHANEY has also transferred from Marcus Hook (where he supervised research at the pilot plant) to Decatur to become senior group leader in charge of the research section.

Another notable move by Chemstrand last month saw seven appointments to the Research and Development Department. They are: MADISON L MARSHALL, ANDREW L SMITH, EDGAR D SMITH, ROBERT L SUBLETT, EDWIN W LARD, LEON HECHT, JR, and ALBERT H BRUNER.

They will be associated with DRS JAMES B BALLENTINE and PATRICK H HOBSON, who for the past year were engaged in fiber research and development at Decatur and at the Marcus Hook pilot plant. Drs Ballentine and Hobson were research chemists with American Viscose Corporation prior to joining the Chemstrand pilot plant. As facilities are completed, research personnel are being coordinated at the four-building research center in Decatur.

M E Jungerman

MARTHA E JUNGERMAN, assistant professor of jacquard and color at Philadelphia Textile Institute, has been awarded the Fulbright Scholarship for 1952-53 to study textiles at University of Leeds. Studies will include field work in English textile schools, mills, design and color centers.

The Fulbright Scholarships are granted by the State Department for promotion of international good will. Outstanding scholars representing different fields of study are nominated for award each year by the Institute of International Education.

Miss Jungerman will be on leave from Philadelphia Textile Institute for the next academic year and will reportedly sail for London on September 12th.

AC HOPKINS, JR, formerly with the American Maize Products Company, was recently named director of commercial chemical development at General Mills Research Laboratories, Minneapolis, Minn. In his new post, Mr Hopkins is in charge of market research and market evaluation of General Mills' chemical products, such as polyamide resins, fatty acid amines and allyl starch. He is also responsible for cost and economic studies and chemical sales development.

In one of his initial moves in his new position, Mr Hopkins announced the appointment of DR OWEN A MOE as manager of the Technical Sales Service Department at the Laboratories. Dr Moe joined General Mills Research Laboratories in 1943 and for the past two years headed the Process Development Section. In his latest role, he is in charge of customer service requests for General Mills' experimental and semicommercial chemical products. He also supervises preparation of technical advertising, data sheets and specifications and directs other promotional activities.

HARRY B McCLURE, vice president of Carbide & Carbon Chemicals Company, has been elected Honorary Chairman of the American Section, Society of Chemical Industry, for the year, 1952-53. The announcement was made by the retiring Chairman, DR ROBERT C SWAIN, vice president of American Cyanamid Co.

Other officers elected were:

Honorary Vice Chairman — LAUREN B HITCHCOCK, National Dairies Research Corporation

Honorary Treasurer — CECIL L BROWN, Standard Oil Development Co

Honorary Comptroller — ROBERT HEGGIE, American Chicle Co

Honorary Secretary—FREDERICK W ADAMS, Spool Cotton Co

Members of the Executive Committee for three years—ALBERT L ELDER, Corn Products Refining Co; L P MOORE, American Cyanamid Co; EMIL OTT, Hercules Powder Co; RAYMOND STEVENS, Arthur D Little, Inc.

Others who continue as members of the Executive Committee are: J L BENNETT, Hercules Powder Co; BRADLEY DEWEY, JR, Dewey & Almy Chemical Co; RAY P DINSMORE, Goodyear Tire & Rubber Co; W W DUECKER, Texas Gulf Sulfur Co; G E HOLBROOK, Du Pont; R T MAJOR, Merck & Co; C F RASSWEILER, Johns-Manville Co; ALEX STEWART, National Lead Co; and ROBERT C SWAIN.

RECENT moves of the Hooker Electrochemical Company include the following:

CHARLES A STRACK has been named to head up research and testing work in the new Virgo Salt laboratory at Niagara Falls, N Y.

HERBERT K HOLDEN has been appointed a salesman in the Niagara sales territory, which comprises western Pennsylvania and New York state exclusive of the metropolitan area.

Two chemical engineers, JOHN T WALMSLEY and FREDERICK W BONACHER, JR, have transferred to the sales coordination office of the Sales Department at Niagara Falls. Both have been with Hooker since 1950.

JOHN P EDWARDS and CARL I GOCHENOUR have transferred from the Development and Research Department to the Sales Department, where they will conduct new product development work in the Sales Development group. Mr Edwards began his affiliation with Hooker in 1940; Mr Gochenour, in 1944.

The Engineering Department has added DR EUGENE T MILLER and ALFRED W TOON.

William A Smith

WILLIAM A SMITH, executive editor of *Oil, Paint and Drug Reporter*, has resigned to become vice-president of the House of J Hayden Twiss, New York Advertising Agency, effective July 7.

Mr Smith was a reporter for Boston newspapers before joining the 81-year-old chemical industry publication in 1939. Following three and one-half years' war service, Mr Smith returned to OPD in 1946 as news editor, became managing editor in 1947, and was appointed executive editor early this year.

The House of J Hayden Twiss specializes in industrial advertising.

M H Corbin

MILFORD H CORBIN, president, Standard-Toch Chemicals, Inc, has accepted chairmanship of the Paints and Chemicals Division of the Joint Defense Appeal, according to a recent announcement by Julius Loewenthal, chairman of the Trades and Industries Division of JDA. Mr Corbin will endeavor to rally support of the paint and chemical industries for JDA's 1952 campaign for $5,000,000.

The JDA is the sole fund-raising arm of the American Jewish Committee and the Anti-Defamation League of B'nai B'rith.

THE Cincinnati Museum of Natural History has announced the election of NELSON S KNAGGS, vice-president in charge of sales of The Hilton-Davis Chemical Company, to the post of chairman of its Finance Committee. The world-famed museum is said to be the oldest institution of its kind west of the Allegheny Mountains.

Mr Knaggs, who is a member of the museum's board of directors, is also a renowned explorer. His most recent trip was taken in the latter part of 1950, when he led an expedition into Central America to study the ruins of ancient Mayan civilization. On that expedition he was authorized to carry the flags of the Explorers' Club, of which he is an accredited member, and the Cincinnati museum.

In 1945 Mr Knaggs explored the Amazon River for wax-bearing botanicals with commercial possibilities. He has also conducted an expedition into the barren Big Bend country in Texas and northern Mexico in search of a source of candelilla wax, carnubia wax not being available during the early years of World War II.

PITTSBURGH Coke & Chemical Company announced the appointment of MARVIN O SHRADER to the post of supervisor of organic chemical research in the Research and Development Department on June 25th. Dr Shrader is the author of several patents and patent applications. Before joining PC&C, he spent ten years with General Aniline & Film Corp.

Early this month, PC&C announced four appointments to the staff of its recently-organized Fine Chemicals Division.

JOSEPH S MILAZZO was named assistant plant superintendent in charge of dyestuff production.

HEINZ GRUEN was appointed assistant supervisor of fine chemical process development. He will supervise laboratory development work of the dyestuff group.

HENRY H RICHMOND will be assistant supervisor of fine chemical research. He was formerly research group leader, organic chemicals.

ALBERT E MEDAS was appointed chief colorist, to supervise dye standardization.

T V MONAHAN, assistant treasurer of Rohm & Haas Company, Philadelphia, has been appointed Chief of the Chemicals Branch of the Rubber, Chemicals and Drugs Division, Office of Price Stabilization, Washington, D C. Mr Monahan, who succeeds PATRICK DOWD, of Monsanto Chemical Company, began six months service on June 30th.

Bernice Judelson

BERNICE JUDELSON has been added to the laboratory staff of the Emkay Chemical Company, Elizabeth, N J, where she will direct research and development for new fiber dyeing assistants and new permanent finishes. Miss Judelson was previously connected with Commonwealth Color & Chemical Company for eight years where she was in charge of the production of textile chemicals.

EDWARD A CHEVRETTE, formerly with Surpass Chemical Company has joined the sales staff of Apex Chemical Co, Inc, New York, N Y.

A specialist in the processing of tubular knit goods, Mr Chevrette gained a practical background of dyeing and finishing while employed by such firms as Brown Knitting Co, Susquehanna Mills and others.

E C Medcalf

E C MEDCALF has been named head of the Coal Tar Chemicals Department, succeeding the late Q T DICKINSON, according to an announcement by S C Moody, vice president and general manager, Calco Chemical Division, American Cyanamid Company. He will be in charge of the purchase and sale of coal tar and light oil crudes.

Mr Medcalf came to Calco as a trainee in 1933 and shortly became a research chemist, a group leader, assistant chief chemist and production superintendent of Coal Tar Department. He was appointed chief chemist in 1945 and in January 1950 he was made vice chairman of Chemicals Department Technical Committees.

He is the author of numerous papers in distillation and extraction processes.

OBITUARY

CHARLES J CARROLL

CHARLES J CARROLL, 58, former Philadelphia resident manager of the American Dyewood Company, died earlier this month at his home in Philadelphia after a long illness.

Mr Carroll resigned a year ago from American Dyewood after a 43-year association to open his own office as sales representative for the J S Young Company of Baltimore. He was an active member of the Philadelphia Section, AATCC.

Surviving are his widow, Anna, and three brothers.

HERMAN T STABER

HERMAN T STABER, secretary-treasurer of Zinsser & Co, Incorporated, Hastings-on-Hudson, N Y, died on July 4th after a brief illness, at his home in Oradell, New Jersey. He was in his 74th year.

In 1918, with Dr Albert E Gessler, Charles H Balke and his brother, Edward, he formed the Ultro Chemical Corporation for the manufacture of dry colors and dyestuffs. In 1926 this corporation was absorbed by Zinsser & Company, Incorporated.

In addition to being secretary-treasurer, Mr Staber was head of purchasing for Zinsser & Co.

TECHNICAL LITERATURE

Cyanamid Technical Data Sheets

American Cyanamid Company
Industrial Chemicals Division
30 Rockefeller Plaza
New York 20, N Y

Products described in these data sheets are: Deceresol surface active agents, Aquasol sulfonated castor oils, No-Odorol sulfonated oils, Texavon penetrants, and Cyanatex softeners, soluble waxes, and other specialties.

Labline Sectional Furniture Builds Better Labs

Bulletin F512
Labline, Inc
217 N Desplaines
Chicago 6, Ill

Labline has just published this 6-page bulletin, which describes and illustrates their complete line of sectional laboratory furniture. Each unit is standardized to give the service and appearance of custom-built furniture. Over 17 basic metal units are currently available for delivery.

The Laboratory Volume 21, No 5

Fischer Scientific Company
717 Forbes Street
Pittsburgh 19, Pa
Available on request

Those interested in the latest developments in laboratory instrumentation and technique will be interested in this latest volume of "The Laboratory", which describes a new key instrument for analysts —the 1952 Electro-Analyzer. As many as four different quantitative analyses can be run simultaneously, it is reported, making possible complete flexibility of schedule in instrumental electro-analysis.

Other items of interest include a note-book-size periodic chart; Fischer-Todd blast burners that permit roar-free laboratory glass-blowing; sitting-height unitized furniture assemblies; an automatic burner-regulator; a thermometer for measuring surface temperatures (stick it on, take a reading).

Welcome to Retsof

International Salt Company
Retsof, New York

Following an historical resume of the Retsof Mine and an introduction "your hosts at Retsof"—T Forster Corthope, general manager of the Retsof and Detroit Mines, and Stanley Martin, plant manager—the reader is taken through a pictorial tour of the International Salt Company's Retsof, New York, Rock Salt Mine. Profusely illustrated, the booklet serves well to outline the mining procedures that take place in a salt mine "as big as Lower New York."

Sequestrene for Improved Textile Wet Processing

Geigy Company, Inc
89-91 Barclay Street
New York 8, N Y
Available on request

This bulletin on Sequestrene incorporates particulars concerning the chemical nature and action of this Geigy product, plus its many textile applications.

With a growing recognition that the effective control of metal salts can minimize many of the difficulties often experienced at every stage from scouring and boil-off to finishing, Geigy has introduced this sequestering agent for binding metal ions in an inactive, though soluble state, thereby protecting critical boil-off, dyeing and bleaching processes from the effects of erratic contamination. Methods for achieving improved results in many operations are outlined in subsequent sections dealing with textile processing operations in which soluble metallic salts are known to have deleterious effects.

The manufacturer states that Sequestrene is ideally suited to textile needs because it deals effectively with all troublesome metals and particularly because it is stable to all conditions of temperature and pH encountered in wet processing.

Mildewproofing Agents Service Report

Report P-17A
Witco Chemical Company
295 Madison Avenue
New York 17, N Y
Available on request

This newly-revised and expanded technical service report covers mildewproofing agents with respect to government specifications and contains brief summaries of many government specifications calling for mildewproofing of canvas, cotton duck, burlap, rope, net, webbing, cord, belting, thread, twine and felt.

Also included are descriptions of the methods used in mildewproofing and the products used, such as 8 per cent copper naphthenate. Finally, there is an index of the specifications abstracted.

Synthetic Fibers

Research Bulletin 65
Research Information Service
53 Nassau Street
New York 38, N Y
Available on request

Significant innovations in the production of man-made fibers are reported from Germany in this 11-page bulletin, which features English translations of a large number of patent applications and research papers of prominent German manufacturers.

The reports cover developments from the war years up to 1951. One of the most recent patent applications offered in Section I of the Bulletin, devoted to "Fully Synthetic Fibers", concerns a process for polymerization of acrylonitrile (Report 5401, $24.00, Badische Anilin & Soda-Fabrik), which reportedly yields homogeneous polymers suitable for spinning with great technical simplicity and at a high rate of output and enables uniform transfer of the polymerization heat. Another process by the same company is said to produce easily-knotting monofilaments from polyamides, polyesters or polyurethans, which exhibit high flexibility, a smooth surface, and high mechanical strength (Report 5402; $6.00).

Section II, "Cellulose Processing", discusses a recent patent application filed by the Glanzstoff-Courtaulds of Cologne pertaining to a process for sulfidizing soda pulp (Report 5403, $8.00), which reportedly yields a uniform xanthate with molecular chain lengths closely approximating those of the starting cellulose. Another, by the Feldmuehle Papier- und Zellstoffwerke, describes a process for purifying cellluose (Report 5777, $9.75), which is said to lead to high yields of pulp with alpha-cellulose contents ranging up to 97% regardless of the type of cellulose subjected to this treatment.

Section III, which is devoted to the manufacture of rayon filaments and staple, features such titles as "A Process for Manufacturing Viscose Fibers of High Tensile Strength" (Report 5404, $9.50), a process for reducing the swelling power of regenerated cellulose products, in which the tensile strength of the treated fibers is reported to be actually increased, while their swelling power is reduced by 50%, a "Process for Imparting Crease Resistance to Cellulose Textiles" (Report 5407, $7.00), a "Process for Increasing the Affinity of Cellulose Hydrate Rayon for Acid Dyes" (Report 5409, $8.00), and a "Process for Manufacturing Rayon Filaments of High Tensile Strength and High Torsional Resistance for Use in Tires" (Report 5410, $5.50).

Speedomax Type G Instruments for Measurement and Control

Catalog ND46(1)
Leeds and Northrup Company
4934 Stenton Avenue
Philadelphia 44, Pa
Available on request

To describe how Speedomax recorders and controllers are being applied to an increasing variety of uses in industrial production and research, Leeds & Northrup has published this revised, 48-page edition. The publication has been expanded to include numerous installation pictures of Speedomax instruments in plant and laboratory, as well as specifications for the latest additions to the Speedomax line.

To the catalog listing of Speedomax instruments for recording or control of temperature, speed, and power have been added recorders for measuring such quantities as pH, daylight illumination, electrolytic conductivity, and weight or other mechanical loads. Listings also include for the first time numerous Speedomax Recorders for specialized applications.

Emery Plastolein Plasticizers

Emery Industries, Inc
Dept 5, Carew Tower
Cincinnati 2, Ohio
Available on request

In addition to specifications and properties for Plastolein 9050 DHZ (di-2-ethylbutyl azelate), 9058 DOZ (di-2-ethylhexyl azelate), 9055 DGP (diethylene glycol dipelargonate), 9250 THFO (tetrahydrofurfuryl oleate), 9715 Polymeric, and 9720 Polymeric, this 24-page booklet contains considerable information on testing of plasticizers including ultra-violet stability and heat stability. Test methods and stabilizer data are also included.

Index of Honeywell Literature

Minneapolis-Honeywell Regulator Co
Industrial Division
Station 40, Wayne and Windrim Aves
Philadelphia 44, Pa
Available on request

Bulletin Index 100-A is an index of technical literature available from Honeywell's Industrial Division. It consists of both a numerical listing and alphabetical cross index for specification sheets, instrumentation data sheets, catalogs and other literature. Included in the alphabetical index, are articles from *Instrumentation*, the manufacturer's quarterly publication.

Croda Information Sheet 109

Croda Inc
51 Madison Ave
New York 10, N Y
Available on request

This sheet contains information on two grades of Oleyl/Cetyl Alcohol Mixtures, products made for Croda in the United Kingdom from 100% pure sperm oil.

Details of titre, iodine value, hydroxyl value, acid value and composition are given for both grades. Cost (in carload lots, delivered in New York metropolitan area) is cited at 28½c per pound; in less than carload lots, 29½c per pound.

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